

®
MAC

V A L V E S

CURRENT

Technology





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Welcome to your brand new MAC VALVES catalogue.

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.

- Direct solenoid valves 3 ways : universal

The following functions are available

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

- Pilot operated valves 3 ways :

The following functions are available

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

- Direct solenoid valves 4 ways :

The following functions are available

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

- Pilot operated valves 4 & 5 ways :

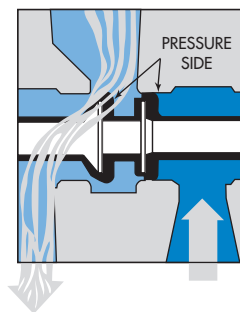
The following functions are available

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

EVERY VALVE FULLY TESTED PRIOR TO SHIPMENT

SPOOLS/BODIES

MAC flow seals are bonded to an aluminium spool, machine ground to a very close tolerance, and chemically surface hardened. The bore of the bodies is finished to a close tolerance, work hardened and polished. The result of these processes on the spool and bore keeps friction to a minimum and provides wiping action thus assuring long, stick-free consistent operation and making the spools relatively unaffected by air line contaminants. MAC spools are of a balanced design; therefore they are not affected by back pressure or restrictions in the exhaust, permitting 3-ways to be plugged for 2-way operation and 4-ways to be plugged for 3-way or 2-way operation. Further, the use of two seals, as illustrated, one for the exhaust and one for inlet, provides for a short stroke and high flow in a small envelope size. All valves utilize one piece aluminium 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.

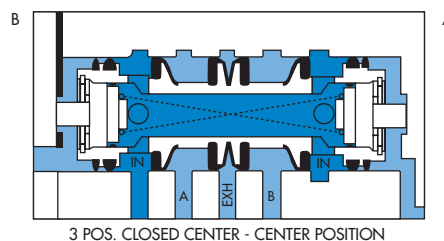


PILOT SYSTEM

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.

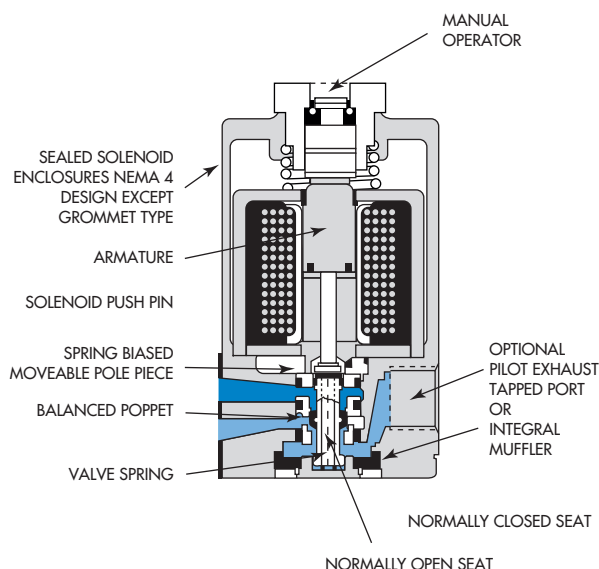
3-POSITION CENTERING

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 catalogue 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.).

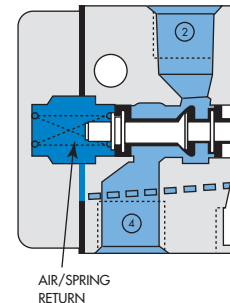


VIRTUALLY—BURN-OUT PROOF MACSOLENOID

The patented spring biased floating pole piece MACSOLENOID used on all 3-ways and 4-ways in this catalogue 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 catalogue can be operated with or without air line lubrication. This is made possible through the use of the unique solenoid pilot operator, the pilot system, the spool and bore design, close tolerances and MAC's prelubrication procedures. In either case, air line filters are recommended and will extend cycle life of the valves.

COILS

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

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

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

ADD-A-UNIT MANIFOLDS

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

ELECTRICAL PLUG-IN CONNECTIONS

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

Let us show you via high performance demonstration kits and animated software,
HOW MAC'S PERFORMANCE ADVANTAGES HELP MAKE YOUR EQUIPMENT MORE RELIABLE - FASTER - MORE REPEATABLE.



TLD

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



PLD

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



Animation

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



Section 1 Direct solenoid and solenoid pilot operated valves



Function	Port size	Flow [Max]	Individual mounting			
			inline	sub-base non "plug-in"	sub-base "plug-in"	valve only
3/2 - 2/2	G1/8"	170	P. 15			
3/2 - 2/2	M5 - G1/8"	160				
3/2 - 2/2	M5 - G1/8"	100				
3/2 - 2/2	G1/8" - G1/4"	180	P. 25			
3/2 - 2/2	G1/8"	140				
3/2 - 2/2	G1/8" - G1/4"	500	P. 33			
3/2 - 2/2	G1/4"	400				
3/2 - 2/2	G1/4" - G3/8"	2200	P. 43			
3/2 - 2/2	G3/8" - G1/2" - G3/4"	5700	P. 47			
3/2 - 2/2	G1/2" - G3/4" - G1"	17400	P. 51			
3/2 - 2/2	G1" - G1 1/4" - G1 1/2"	26000	P. 55			
3/2 - 2/2	G2" - G2 1/2"	60000	P. 59			
4/2	M5 - G1/8"	150	P. 63			
4/2	M5 - G1/8"	130		P. 65		
4/2	M5 - G1/8"	200				
4/2	M5 - G1/8"	110				
4/2	G1/8" - G1/4"	700	P. 85			
4/2	G1/8" - G1/4"	800				
4/2	G1/8" - G1/4"	1200	P. 91			
4/2	G1/8" - G1/4" - G3/8"	1400				
4/2	G1/8" - G1/4" - G3/8"	1350		P. 97	P. 99	
4/2 - 4/3	G1/4" - G3/8"	1350				
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000		P. 107	P. 109	
4/2 - 4/3	G3/8" - G1/2"	3000				
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100		P. 117	P. 119	
4/2 - 4/3	G3/4" - G1"	9600		P. 127	P. 129	
4/2 - 4/3	G3/4" - G1" - G1 1/4"	9600				
4/2 - 4/3	G3/4" - G1" - G1 1/4" - G1 1/2"	15900			P. 137	
4/2 - 4/3	G1/4"	1400	P. 141			
5/2 - 5/3	G1/4" - G3/8"	1400				
5/2 - 5/3	G1/4" - G3/8"	1600				P. 155
5/2 - 5/3	G3/8" - G1/2"	3000				P. 159
5/2 - 5/3	G1/2" - G3/4"	6300				P. 163

s o l e n o i d p i l o t o p e r a t e d v a l v e s

Manifold mounting

Series

stacking	sub-base non "plug-in"	sub-base with pressure regulators	sub-base with pressure regulators and flow controls	sub-base "plug-in"	sub-base "plug-in" with pressure regulator	sub-base "plug-in" with flow controls	sub-base "plug-in" with regulator and flow controls	stacking body with 1 common port (inlet)	stacking body with 3 common ports (inlet & exhausts)	stacking body with 3 common ports and integral F.C.	stacking body with 3 common ports with common conduit	stacking body with 3 common ports with C. C. & integral exh. F. C.	valve only
P. 17													
	P. 19	P. 21											
P. 27	P. 29												
	P. 35												
		P. 37-39											
P. 67													
	P. 69	P. 71	P. 73	P. 75	P. 77	P. 79	P. 81						
P. 87													
P. 93													
	P. 101			P. 103									
	P. 111			P. 113									
	P. 121			P. 123									
	P. 131			P. 133									
								P. 143					
									P. 145	P. 147	P. 149	P. 151	
													P. 155
													P. 159
													P. 163

35

100

200

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59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

Individual mounting

inline	
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Manifold mounting

stacking	sub-base non "plug-in"	sub-base with pressure regulators	
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Series

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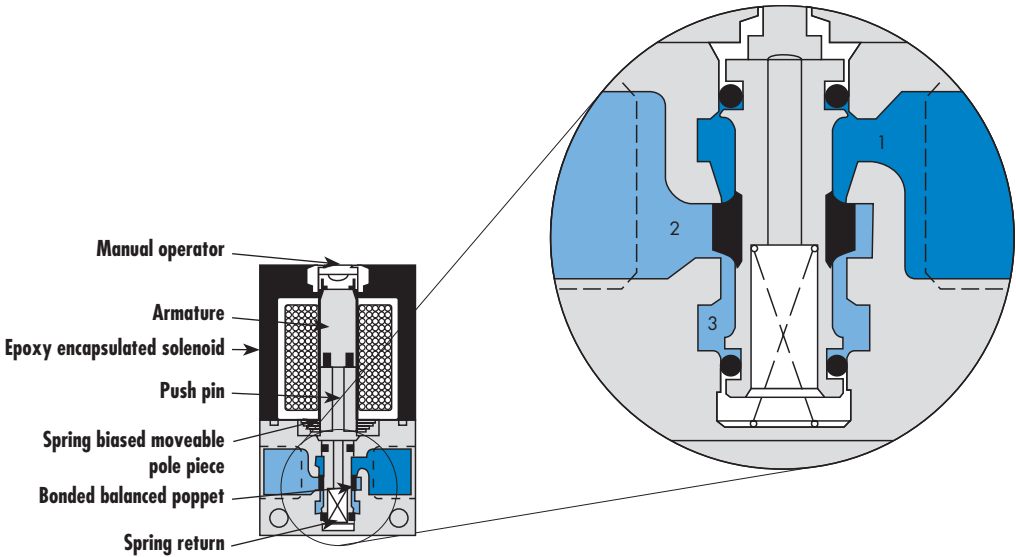
1300

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ISO 1

ISO 2

ISO 3



SERIES FEATURES

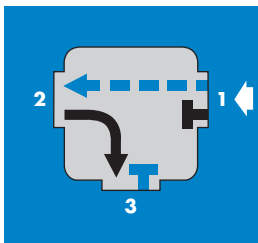
- Patented MACSOLENOID for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Balanced poppet permits versatility in function — may be used as 3-way or 2-way normally open or normally closed and may be used for vacuum, divertor,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

VALVE CONFIGURATIONS AVAILABLE :

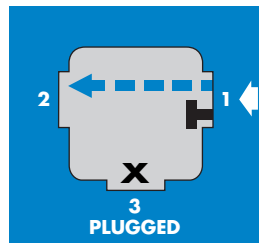
The 35 Series is a miniature 3 way or 2 way valve.
This valve provides extremely fast response, long life and high flow in a surprisingly small package.

- 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.

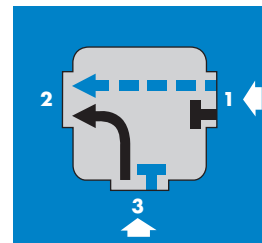
PIPING CHART FOR INDIVIDUAL MODELS



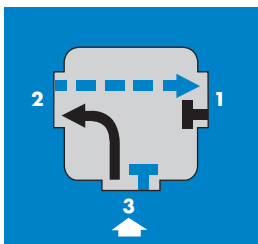
**3 Way
Normally Closed**



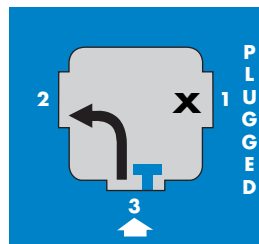
**2 Way
Normally Closed**



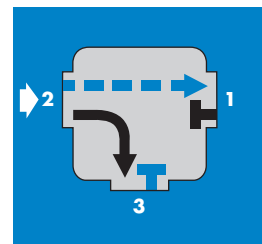
Selector



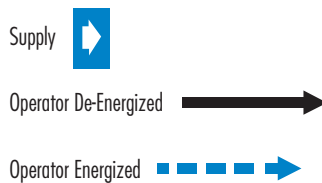
**3 Way
Normally Open**



**2 Way
Normally Open**



Divertor



Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8"	170 NI/min	inline	

OPERATIONAL BENEFITS

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



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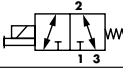
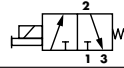
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	35A-ACA-DXXX-XXX	35A-ACB-DXXX-XXX

SOLENOID OPERATOR ►

D XX X- X XX *

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

* Other options available, see page 309.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 80 NI/min, 5.4 W : 150 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V= / 5.4 W Energize : 6 ms De-energize : 2 ms 50 Hz / 6 W Energize : 3-8 ms De-energize : 2-7 ms

Spare parts :

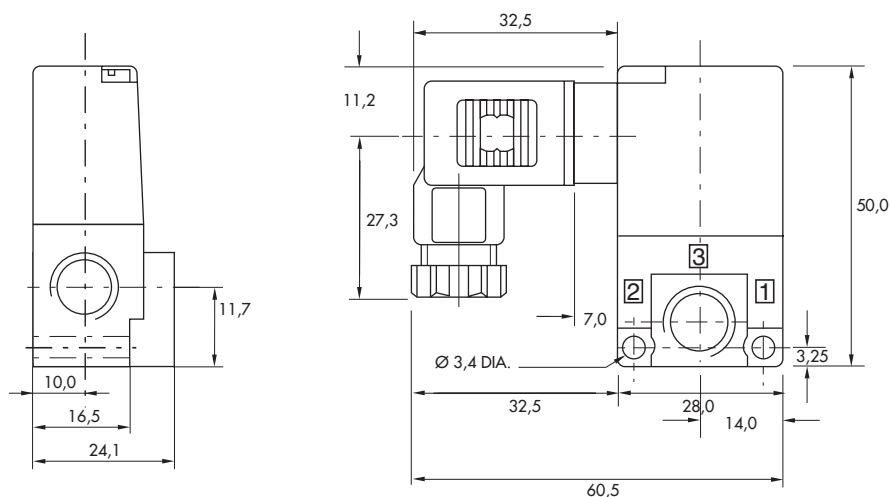
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402.

Options :

- NPTF threads. • High flow up to 250 NI/min, according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	M5, G1/8"	160 NI/min	stacking	

OPERATIONAL BENEFITS

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



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1300

800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	NC only valve	NO only valve
		
G1/8"	35A-SCC-Dxxx-xxx	35A-SCD-Dxxx-xxx
M5	35A-SDC-Dxxx-xxx	35A-SDD-Dxxx-xxx

SOLENOID OPERATOR ➤

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size : G1/4") : M-35001-01P
Note : upon request, manifolds are mounted at the factory.

OPTIONS

35A-TXX-Dxxx-xxx

- Bottom Inlet

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 120 NI/min, 5.4 to 12.7 W : 160 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V= / 5.4 W Energize : 6 ms De-energize : 2 ms 50 Hz / 6 W Energize : 3-8 ms De-energize : 2-7 ms

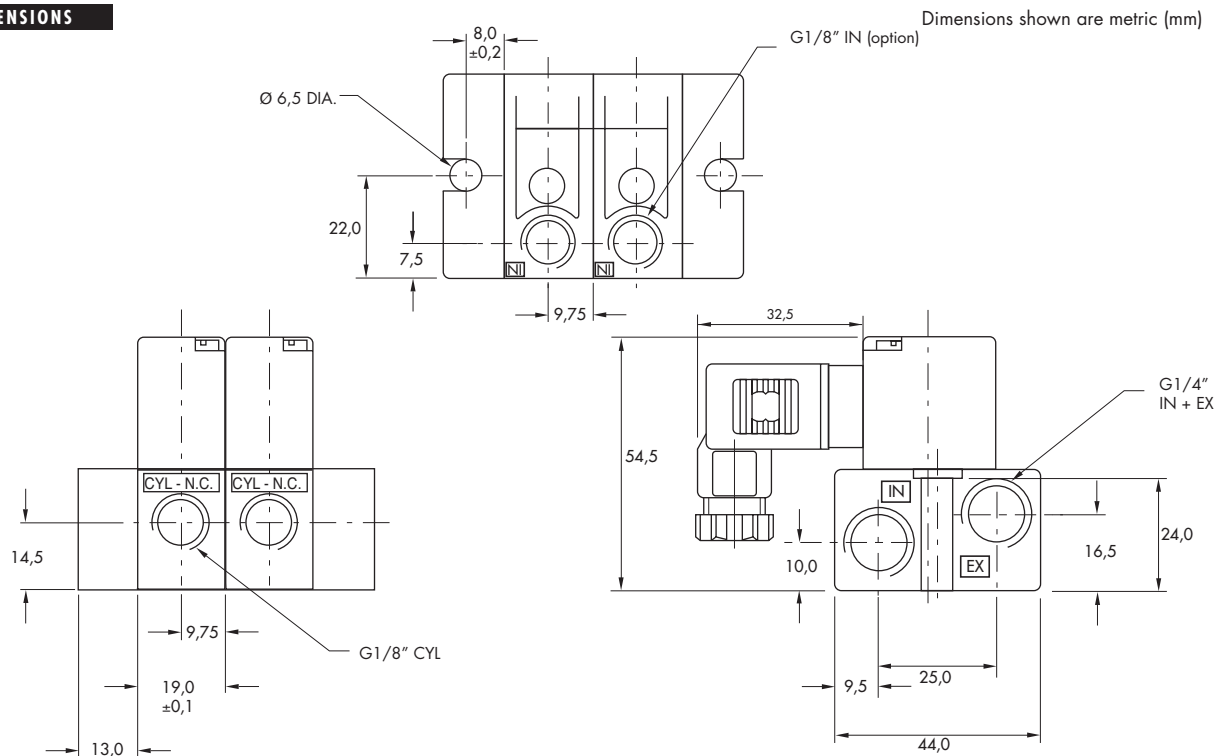
Spare parts :

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

Options :

- NPTF threads. • High flow up to 250 NI/min, according to wattage and high flow mod.

DIMENSIONS



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	M5, G1/8"	100 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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



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200

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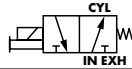
57

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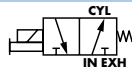
59

HOW TO ORDER

SIDE CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
Valve less base (universal)	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
M5 base	35A-BDE-Dxxx-xxx	35A-BDF-Dxxx-xxx
G1/8" base	35A-BCE-Dxxx-xxx	35A-BCF-Dxxx-xxx

BOTTOM CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
Valve less base (universal)	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
M5 base	35A-BJE-Dxxx-xxx	35A-BJF-Dxxx-xxx
G1/8" base	35A-BHE-Dxxx-xxx	35A-BHF-Dxxx-xxx

SOLENOID OPERATOR ➤

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size : G1/4") : M-35003-01P
Note : upon request, manifolds are mounted at the factory.

OPTIONS

35A-EXX-Dxxx-xxx	35A-FXX-Dxxx-xxx	35A-OXX
- N.C. only valve	- universal w/gage port	- no valve body (base only)

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 to 12.7 W : 100 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

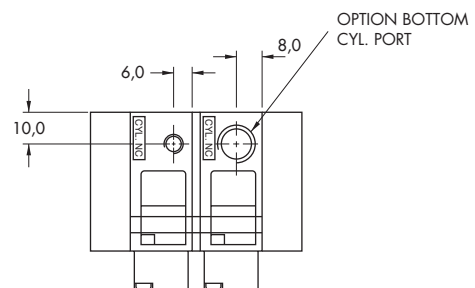
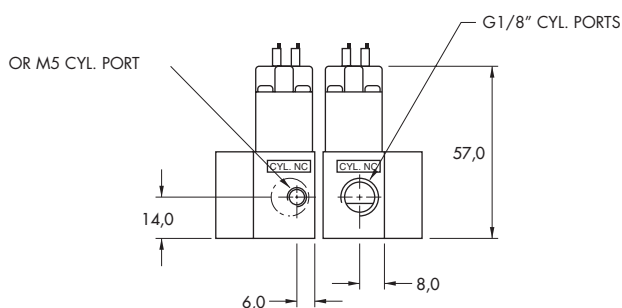
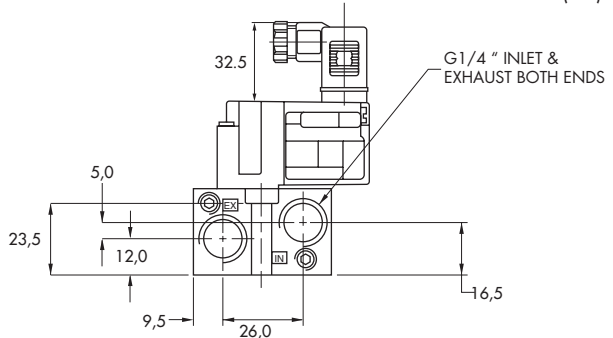
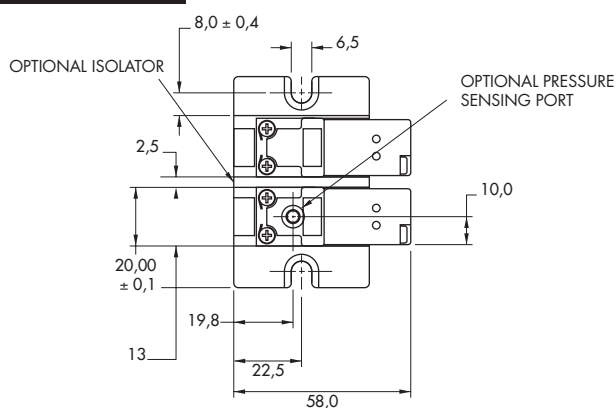
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Pressure seal (between valve and base) : 16447.
- Pressure seal (between bases) : 16461. • Tie-rod (x2) : 19753. • Inlet isolator : N-35007. • Exhaust isolator : N-35008.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

Options :

- NPTF threads. • High flow up to 180 NI/min, according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	M5, G1/8"	100 NI/min	sub-base with pressure regulators	

OPERATIONAL BENEFITS

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



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

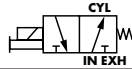
ISO 1

ISO 2

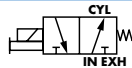
ISO 3

HOW TO ORDER

SIDE CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
Valve less base (universal)	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
M5 base	35A-BDJ-Dxxx-xxx	35A-BDK-Dxxx-xxx
G1/8" base	35A-BCJ-Dxxx-xxx	35A-BCK-Dxxx-xxx

BOTTOM CYLINDER PORTS

Port size	Norm. closed Manifold base	Norm. open Manifold base
		
Valve less base (universal)	35A-B00-Dxxx-xxx	35A-B00-Dxxx-xxx
M5 base	35A-BJJ-Dxxx-xxx	35A-BJK-Dxxx-xxx
G1/8" base	35A-BHJ-Dxxx-xxx	35A-BHK-Dxxx-xxx

SOLENOID OPERATOR ►

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size : G1/4") : M-35003-01P

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

OPTIONS

35A-EXX-Dxxx-xxx	35A-FXX-Dxxx-xxx	35A-OXX
- N.C. only valve	- universal w/gage port	- no valve body (base w/regulator)

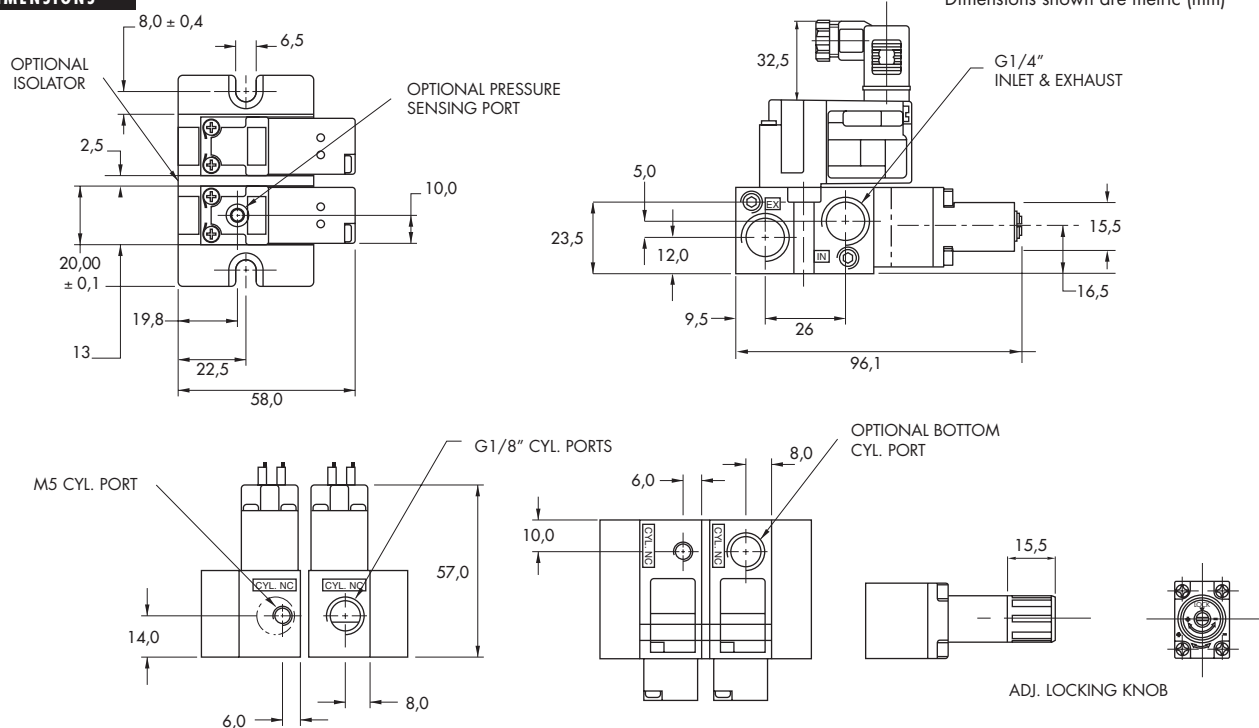
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 to 12.7 W : 100 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

- Spare parts :
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
 - Seal (between solenoid and valve body) : 16402. • Pressure seal (between valve and base) : 16447.
 - Pressure seal (between bases) : 16461. • Tie-rod (x2) : 19753. • Inlet isolator : N-35007. • Exhaust isolator : N-35008.
 - Inlet & Exhaust isolator : N-35006. • Pressure regulator : 35A-00M (ADJ, KNOB) - 35A-00L (SLOTTED STEM).
- Options :
- NPTF threads. • High flow up to 180 NI/min, according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)



Direct solenoid and solenoid pilot operated valves

Individual mounting

Series

inline

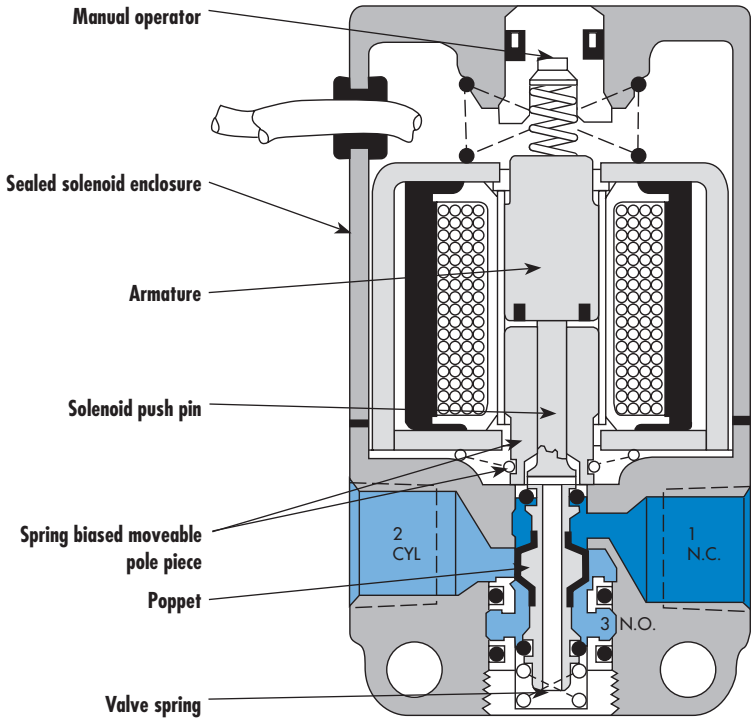
Manifold mounting

35

stacking

sub-base
non "plug-in"

100



200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

SERIES FEATURES

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

APPLICATION CONVERSION PROCEDURE:

INDIVIDUAL MODELS

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

STACKING BODY MODELS

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

MANIFOLD BASE MODELS

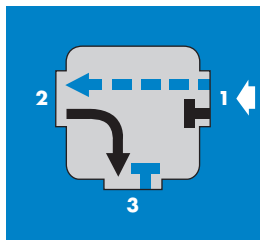
The interchangeable function plate between the valve bodies and base permits selection for 2- or 3-way, Normally Closed or Normally Open operation. On 3-way applications, one

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

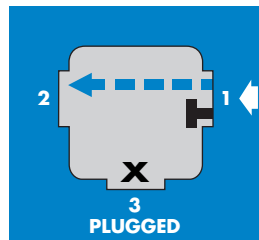
N.C. ONLY MODELS

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

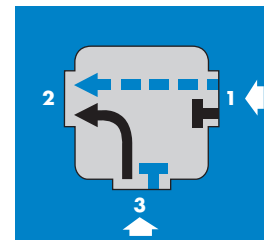
PIPING CHART FOR INDIVIDUAL MODELS



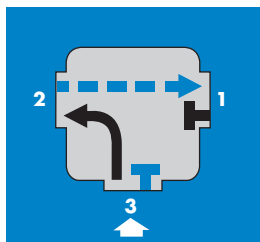
**3 Way
Normally Closed**



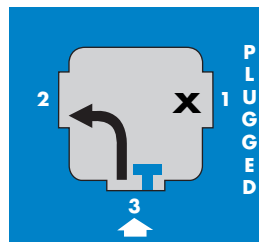
**2 Way
Normally Closed**



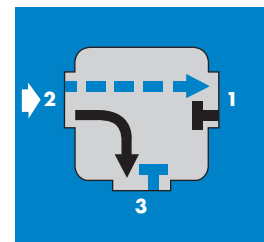
Selector



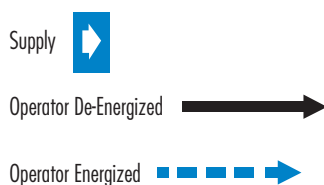
**3 Way
Normally Open**



**2 Way
Normally Open**



Divertor



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

OPERATIONAL BENEFITS

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



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100

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59

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700

900

82

6300

6500

6600

1300

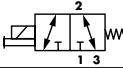
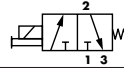
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	116B- XXYYZZ	166B- XXYYZZ
G1/4"	117B- XXYYZZ	167B- XXYYZZ

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

NORMALLY CLOSED ONLY MODELS

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

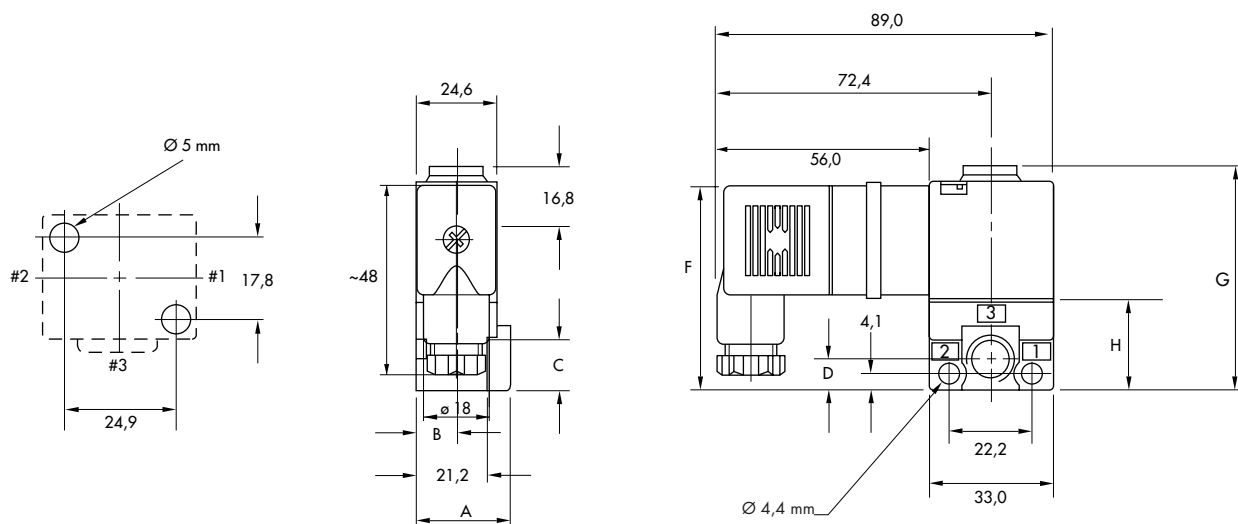
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	180 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W		
Response times :	24 V= /8.5 W	Energize : 7 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

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

DIMENSIONS

Dimensions shown are metric (mm)



PORT SIZE	A	B	C	D	E	F	G	H
G1/8"	28.4	12.7	14.0	8.0	40.1	64.9	60.1	23.2
G1/4"	29.8	13.3	12.7	9.9	40.9	65.8	60.9	24.1

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

OPERATIONAL BENEFITS

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



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200

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700

900

82

6300

6500

6600

1300

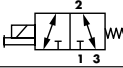
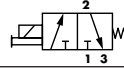
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ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	186B- XX YZZ	188B- XX YZZ
G1/4"	187B- XX YZZ	189B- XX YZZ

SOLENOID OPERATOR ►

XX Y ZZ *

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

* Other options available, see page 305.

End plate kit required (Port size G1/4") : M-01001-01P

Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

NORMALLY CLOSED ONLY MODELS

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

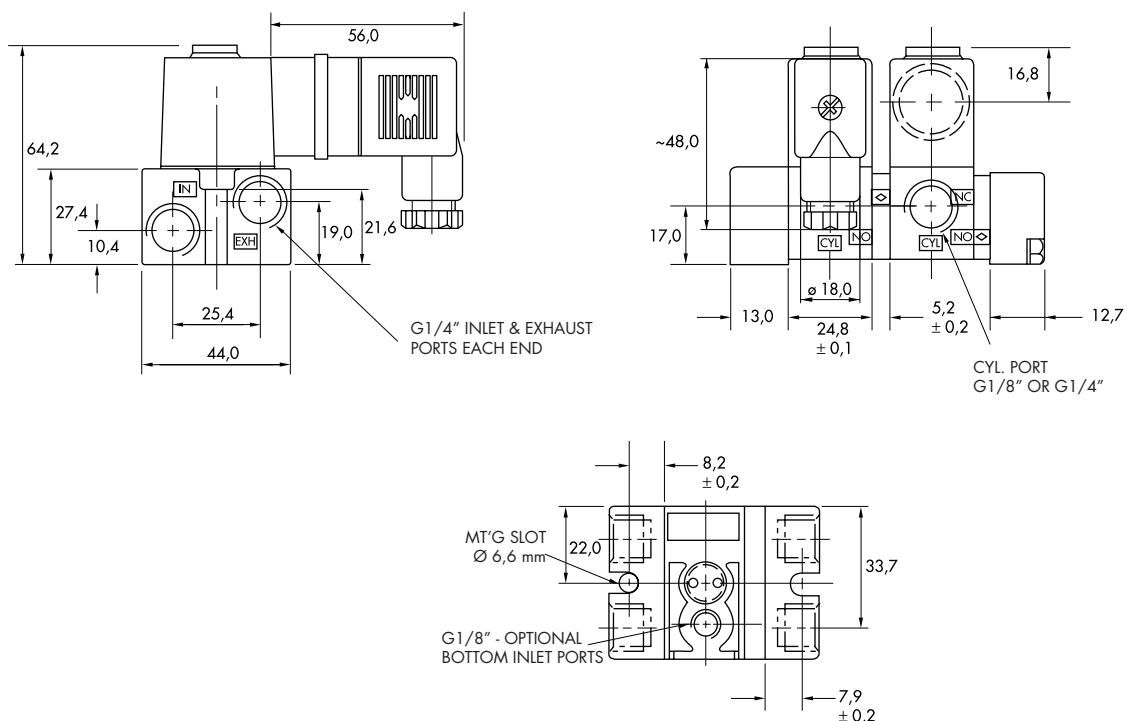
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	180 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush 14.8 VA Holding : 10.9 VA DC : 1 to 17.1 W		
Response times :	24 V=8.5 W	Energize : 7 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

- Spare parts :
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
 - Function plate : N-01002. • Tie-rod (x2) : 19674. • Inlet isolator plate : N01003. • Exhaust isolator plate : N01004.
- Options :
- NPTF threads. • Bottom inlet (Mod. 0210).

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8"	140 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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



35

100

200

55

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57

58

59

45

700

900

82

6300

6500

6600

1300

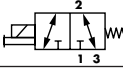
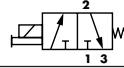
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	130B- XXYYZZ	170B- XXYYZZ
G1/8" base	136B- XXYYZZ	176B- XXYYZZ

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

End plate kit required (Port size : G1/4") : A2-5004-01P

OPTIONS

12XB- XXYYZZ
2-way N.C.
14XB- XXYYZZ
2-way N.O.
102
(Base only)

Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

NORMALLY CLOSED ONLY MODELS

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	140 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W		
Response times :	24 V=8.5 W	Energize : 7 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

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

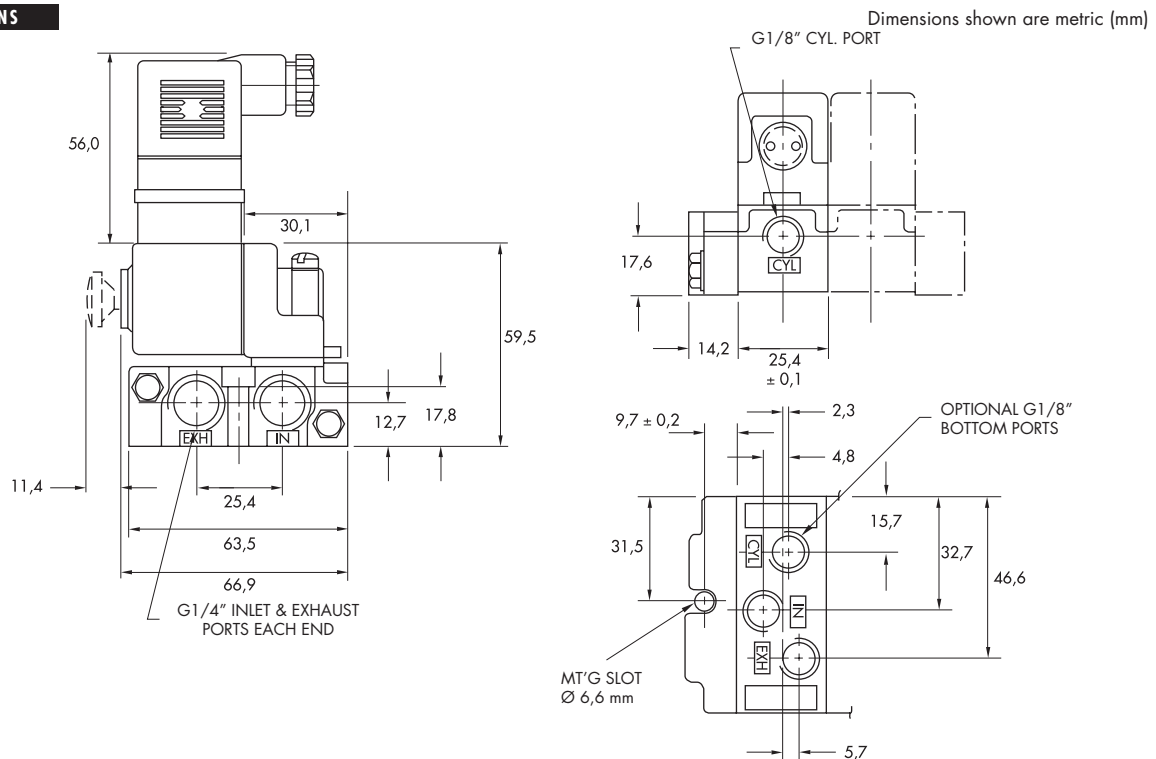
Options :

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

Note :

- Specify mod. number after valve model number (i.e. 130B-111BA Mod. 0210)

DIMENSIONS



Individual mounting

inline

Series

Manifold mounting

sub-base
non "plug-in"

sub-base with
pressure
regulators

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

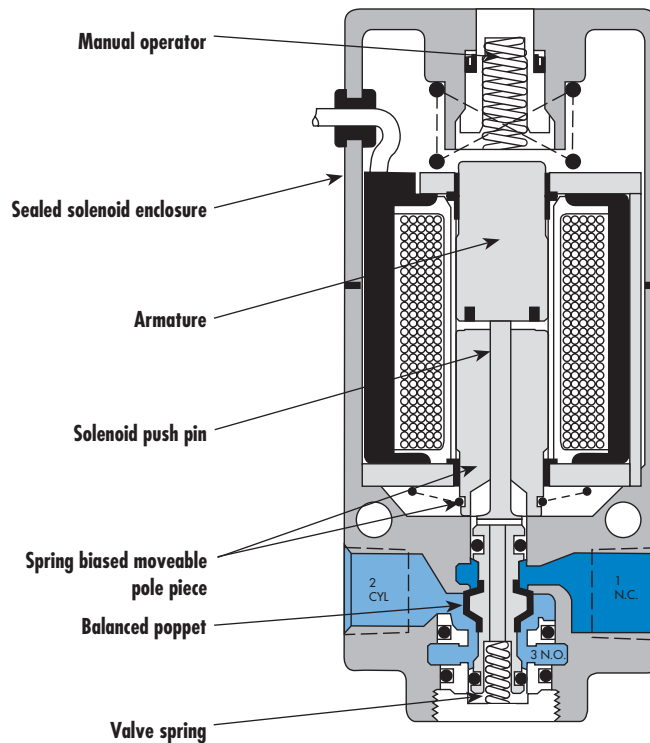
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

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

APPLICATION CONVERSION PROCEDURE:

INDIVIDUAL MODELS

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

MANIFOLD MODELS

The interchangeable function plate between the valve body and base permits selection for 2- or 3-way, Normally Closed or Normally Open operation, instead of through piping as shown below in the Inlines. On 3-way applications, one function plate is used for both N.C. and N.O. When "3-C" is visible on the plate, the function will be N.C.

When "3-O" is visible, the function is N.O. On 2-way applications, a separate plate is used and like the 3-way plate is marked "2-C" for N.C. and "2-O" on the other side for N.O. The 2-way plates block the exhaust at the valve, permitting the mixing in a stack of

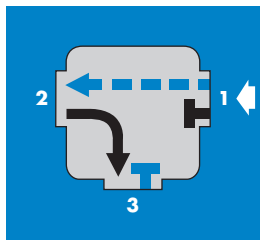
3-ways and 2-ways. Changes within a stack from one function to another can be made without disturbing the plumbing.

SPECIAL APPLICATIONS:

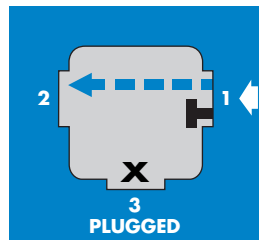
N.C. ONLY MODELS

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

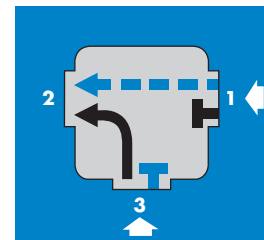
PIPING CHART FOR INDIVIDUAL MODELS



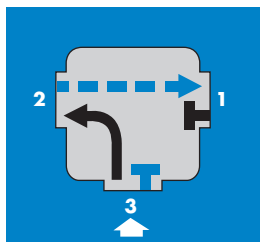
**3 Way
Normally Closed**



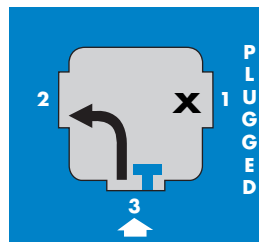
**2 Way
Normally Closed**



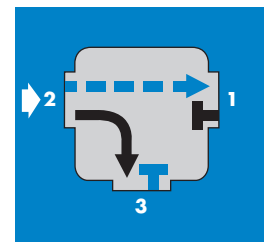
Selector



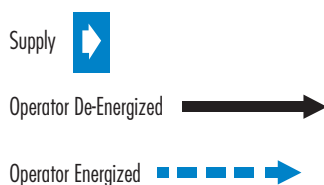
**3 Way
Normally Open**



**2 Way
Normally Open**



Divertor



Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8" - G1/4"	500 NI/min	inline	

OPERATIONAL BENEFITS

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



35

100

200

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56

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58

59

45

700

900

82

6300

6500

6600

1300

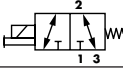
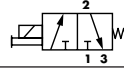
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	224B- XXYYZZ Mod 005	274B- XXYYZZ Mod 005
G1/4"	225B- XXYYZZ Mod 005	275B- XXYYZZ Mod 005

SOLENOID OPERATOR ➤

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	JA Square connector
12 220V~/50Hz	2 Locking	JC Square connector with light
22 24V~/50Hz		BA Flying leads (45 cm)
52 24V=/2,5W		
78 24V=/24W		
61 24V=/8,5W		

* Other options available, see page 305.

Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

NORMALLY CLOSED ONLY MODELS

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

TECHNICAL DATA

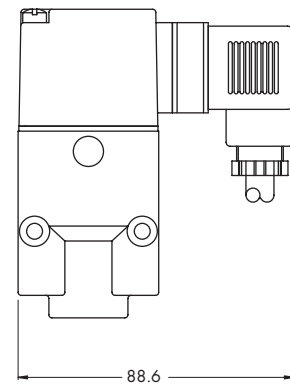
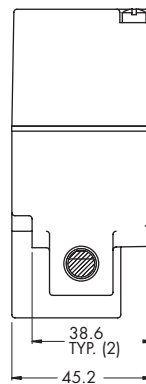
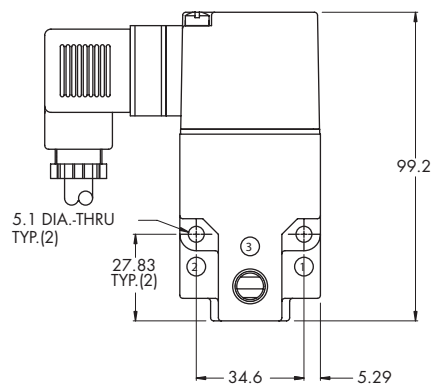
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	500 NI/min		
Coil :	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 V=/8.5 W	Energize : 15 ms	De-energize : 5 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 3-13 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8" - G1/4"	500 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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



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6300

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ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	250B- XXYYZZ	280B- XXYYZZ
G1/8" base	256B- XXYYZZ Mod 005	286B- XXYYZZ Mod 005
G1/4" base	257B- XXYYZZ Mod 005	287B- XXYYZZ Mod 005

SOLENOID OPERATOR ➤

XX Y ZZ *

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	JC Square connector with light
12 220V~/50Hz	2 Locking	JA Square connector
22 24V~/50Hz		BA Flying leads (45 cm)
52 24V=/2,5W		
78 24V=/24W		
61 24V=/8,5W		

* Other options available, see page 305.

End plate kit required (Port size : G1/4") : A2-5003-01P.

OPTIONS

26XB- XXYYZZ Mod 005	206 Mod 005	207 Mod 005
— universal 2-way	(Base only - G1/8")	(Base only - G1/4")

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

NORMALLY CLOSED ONLY MODELS

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	500 NL/min		
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 V= / 8.5 W	Energize : 15 ms	De-energize : 5 ms
	50 Hz / 6 W	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts :

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

Options :

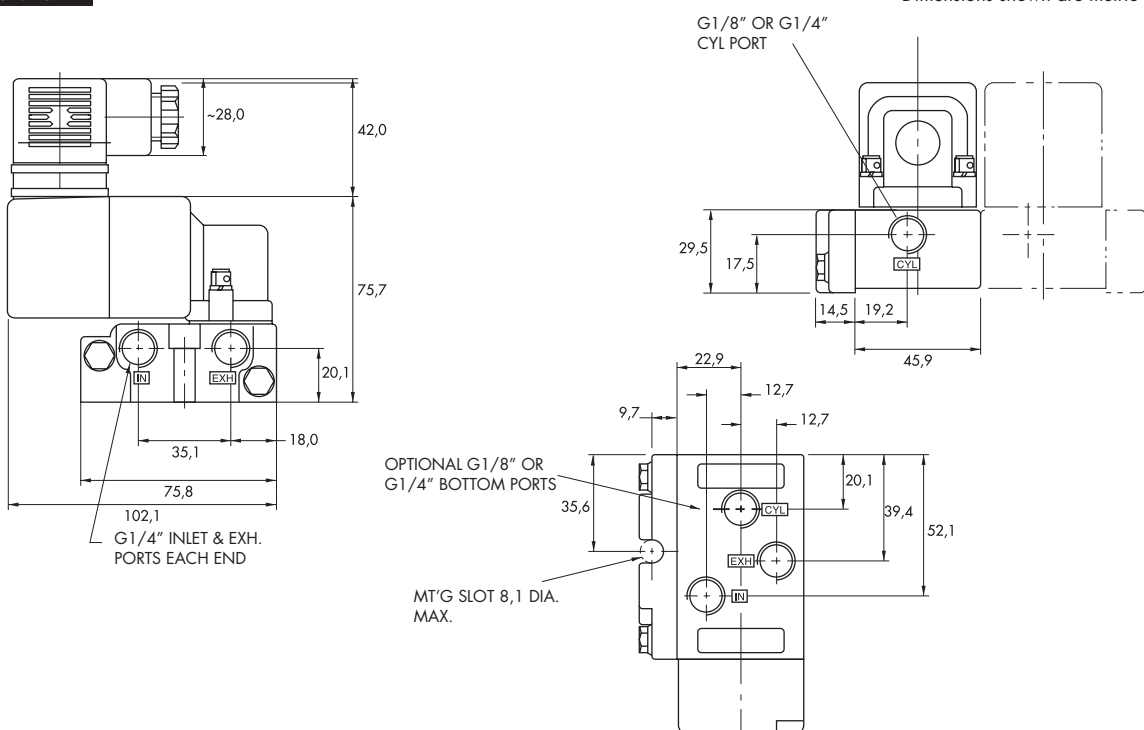
- NPTF threads. • Isolation of inlet : Mod. 313P. • Isolation of exhaust : Mod. 313E.
- Additional bottom inlet : Mod. 0210. • Bottom cyl. port : Mod. 0009. • All bottom & side ports : Mod. 0004.

Note :

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

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/4"	400 NI/min	sub-base with pressure regulators	

OPERATIONAL BENEFITS

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



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6300

6500

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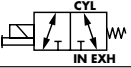
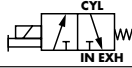
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	250B- XXYYZZ	280B- XXYYZZ
G1/4" base	252B- XXYYZZ Mod 005	282B- XXYYZZ Mod 005

SOLENOID OPERATOR ➤

XX Y ZZ*		
XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	JA Square connector
12 220V~/50Hz	2 Locking	JC Square connector with light
22 24V~/50Hz		BA Flying leads (45 cm)
52 24V~/2,5W		
78 24V~/24W		
61 24V~/8,5W		

* Other options available, see page 305.

Manifold fastening kit required : N-02003

MODEL

252B- 3-Way N.C. or N.O.

262B- 2-Way N.C. or N.O.

282B- 3-Way N.C. only

INDIVIDUAL PRESSURE CONTROL TO EACH CYLINDER PORT

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	400 NI/min		
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 V=8.5 W	Energize : 15 ms	De-energize : 5 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts :

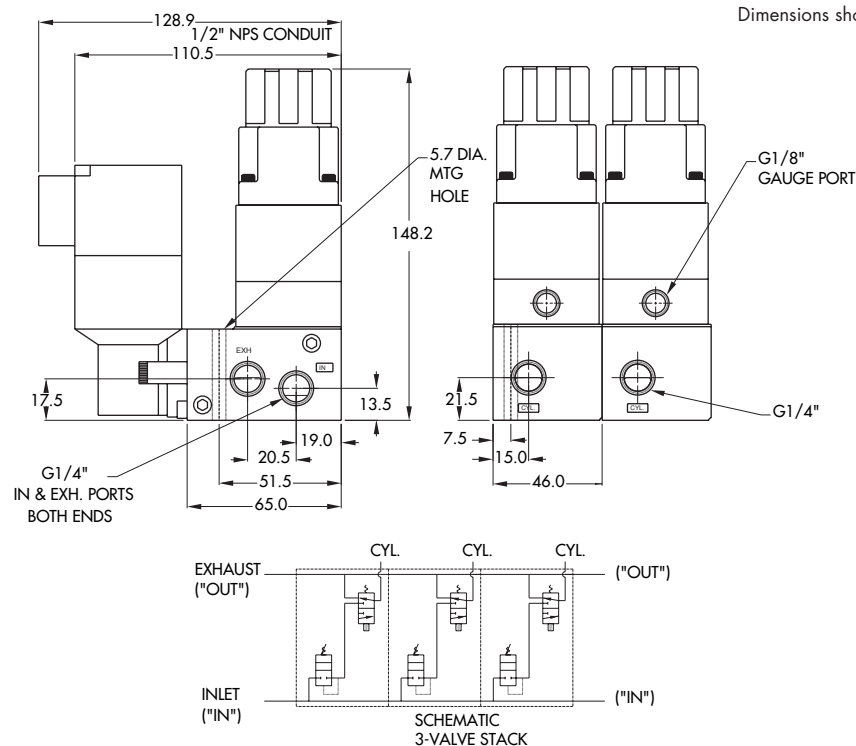
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
- Function plate : A2-7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.

Options :

- NPTF threads. • Isolation of inlet and/or exhaust.
- Mod. PR80 (0-5,3 bar pressure range), Mod PR30 (0-2 bar pressure range)

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/4"	400 NI/min	sub-base with pressure regulators	

OPERATIONAL BENEFITS

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



35

100

200

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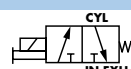
56

57

58

59

HOW TO ORDER

Port size	NC only valve
	
Valve	251B-XXYYZZ Mod 005

45

SOLENOID OPERATOR ➤

XX Y ZZ *

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	1	Non-locking	JA	Square connector
12	220V~/50Hz	2	Locking	JC	Square connector with light
22	24V~/50Hz			BA	Flying leads (45 cm)
52	24V~/2,5W				
78	24V~/24W				
61	24V~/8,5W				

700

900

82

* Other options available, see page 305.

Manifold fastening kit required : N-02003

MODEL

251B-

3-Way Normally Closed

SELECTED PRESSURE CONTROL TO A SINGLE OUTLET

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

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 60°C (0°F to 140°F)		
Flow (at 6 bar, ΔP=1bar) :	400 NI/min		
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 V= / 8.5 W	Energize : 15 ms	De-energize : 5 ms
	50 Hz / 6 W	Energize : 3-8 ms	De-energize : 3-13 ms

Spare parts :

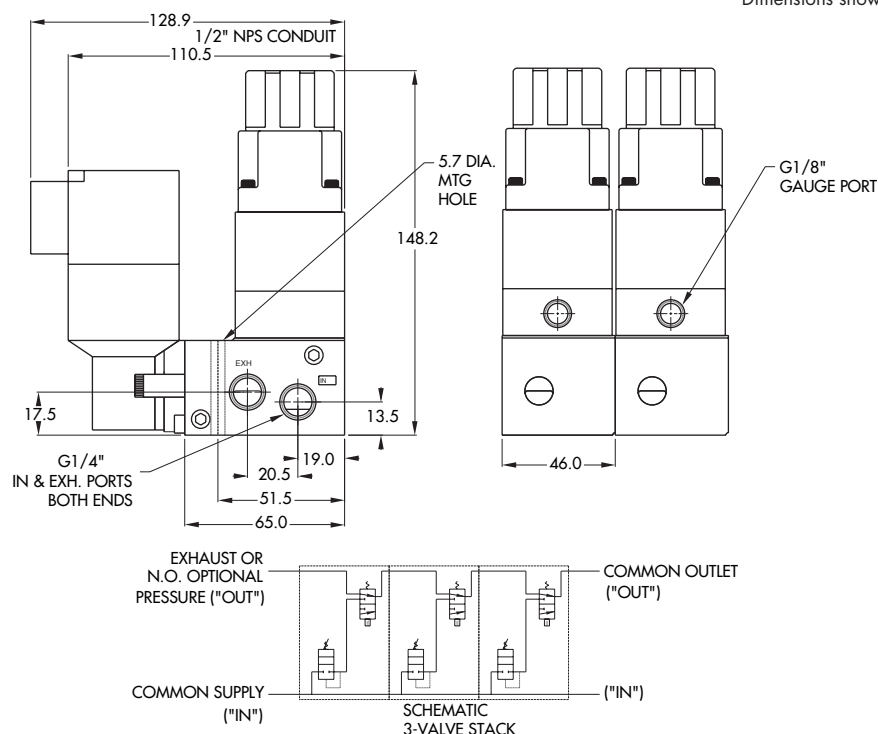
- Solenoid operator (power ≥ 6 W) : D4-XXAAB, cover mounting screws 32222 and seal B5-6001.
- Function plate : A2-7005. • Seal between bases (x2) : 17016-01. • Tie-rod (x2) : B4-9004. • Pressure regulator : PR02A-A0AA.

Options :

- NPTF threads. • Isolation of inlet and/or exhaust.
- Mod. PR80 (0-5,3 bar pressure range), Mod PR30 (0-2 bar pressure range)

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

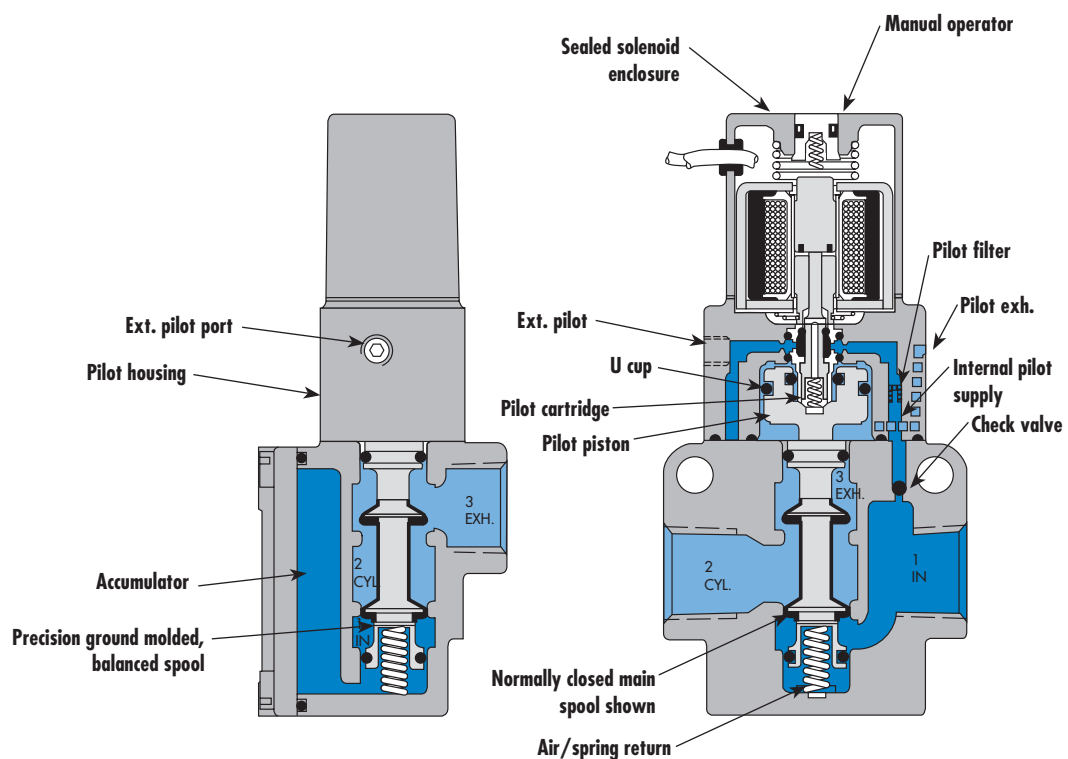
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging a port) Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 2 bar main valve pressures on solenoid or 1,7 bar 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 2 to 10 bar, 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 2 to 10 bar 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 2 bar on solenoid pilot or 1,7 bar on remote air pilot operated models. To convert from internal to external pilot on solenoid models simply rotate pilot housing 180 degrees and connect external pilot source. (Use either M5 or #10-32 fitting.) On remote air pilot models, specify **-RE**.

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

OPERATIONAL BENEFITS

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



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700

900

82

6300

6500

6600

1300

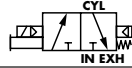
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

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

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

Note : Exhaust port is G3/8"

TECHNICAL DATA

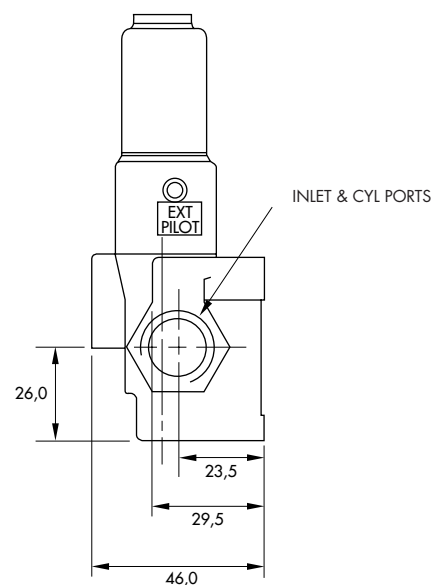
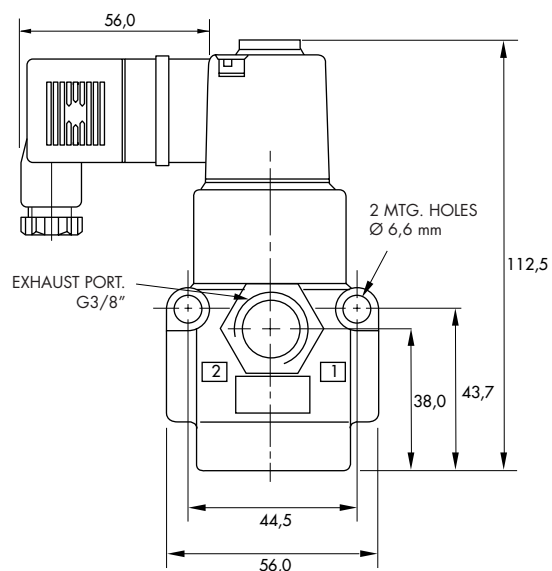
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 2 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	2 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : G1/4" : 1400 NI/min, G3/8" : 1600 NI/min, Norm. Open : G1/4" : 1800 NI/min, G3/8" : 2200 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W
Response times :	24 V= / 8.5 W Energize : 9 ms De-energize : 4.8 ms 50 Hz / 6 W Energize : 5-11 ms De-energize : 5-11 ms

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

Options :
 • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

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700

900

82

6300

6500

6600

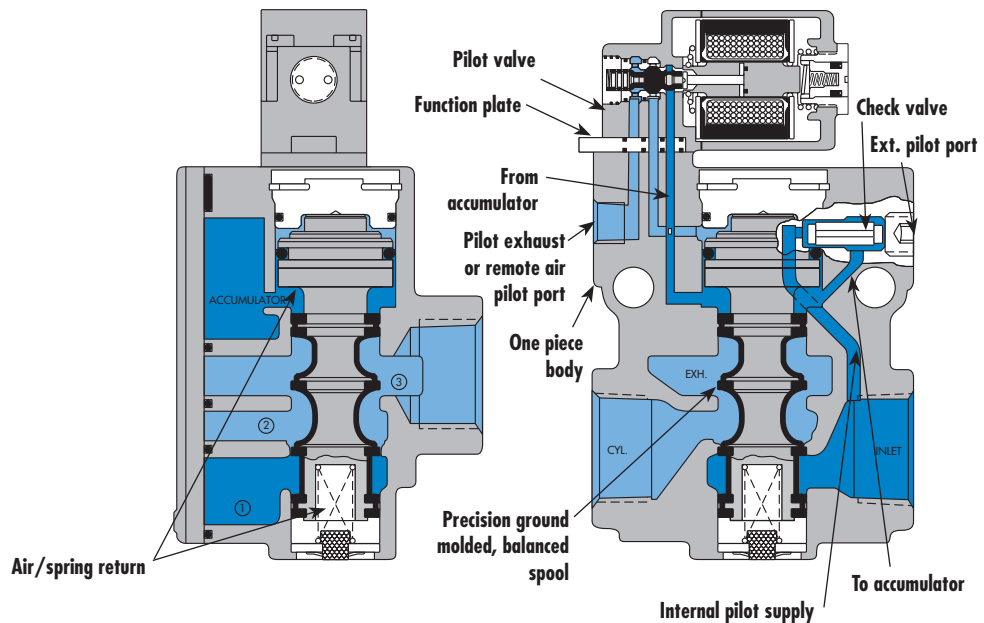
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging a port) Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 1.7 bar main valve pressures on solenoid or remote air models.
- Manual and mechanical operators available.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

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

- 2-way Normally Closed-Same as 3-way N.C. but also plug port #3.
- 2-way Normally Open-Same as 3-way N.O. but also plug port #3.
- Selector-Pipe higher pressure to port #1 and lower pressure port #3.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. 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 1.7 bar. 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 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the port #3 and leave port #1 open to atmosphere or pressure port #1 for vacuum/pressure selector applications.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

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

OPERATIONAL BENEFITS

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



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100

200

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45

700

900

82

6300

6500

6600

1300

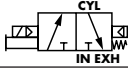
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	NO only valve		
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool
				
G3/8"	Internal	56C-15- XXYZZ	56C-25- XXYZZ	56C-65- XXYZZ
G1/2"		56C-16- XXYZZ	56C-26- XXYZZ	56C-66- XXYZZ
G3/4"		56C-18- XXYZZ	56C-28- XXYZZ	56C-68- XXYZZ
G3/8"	External	56C-35- XXYZZ	56C-45- XXYZZ	56C-75- XXYZZ
G1/2"		56C-36- XXYZZ	56C-46- XXYZZ	56C-76- XXYZZ
G3/4"		56C-38- XXYZZ	56C-48- XXYZZ	56C-78- XXYZZ

SOLENOID OPERATOR ►

XX Y ZZ*

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

* Other options available, see page 305.

Note : Exhaust port is G3/4"

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : G3/8" : 4400 NI/min, G1/2" : 5000 NI/min, G3/4" : 5400 NI/min, Norm. Open : G3/8" : 4600 NI/min, G1/2" : 5100 NI/min, G3/4" : 5700 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17 W
Response times :	24 V= / 8.5 W Energize : 11 ms De-energize : 10,8 ms 50 Hz/ 6 W Energize : 7-12 ms De-energize : 9-14 ms

Spare parts :

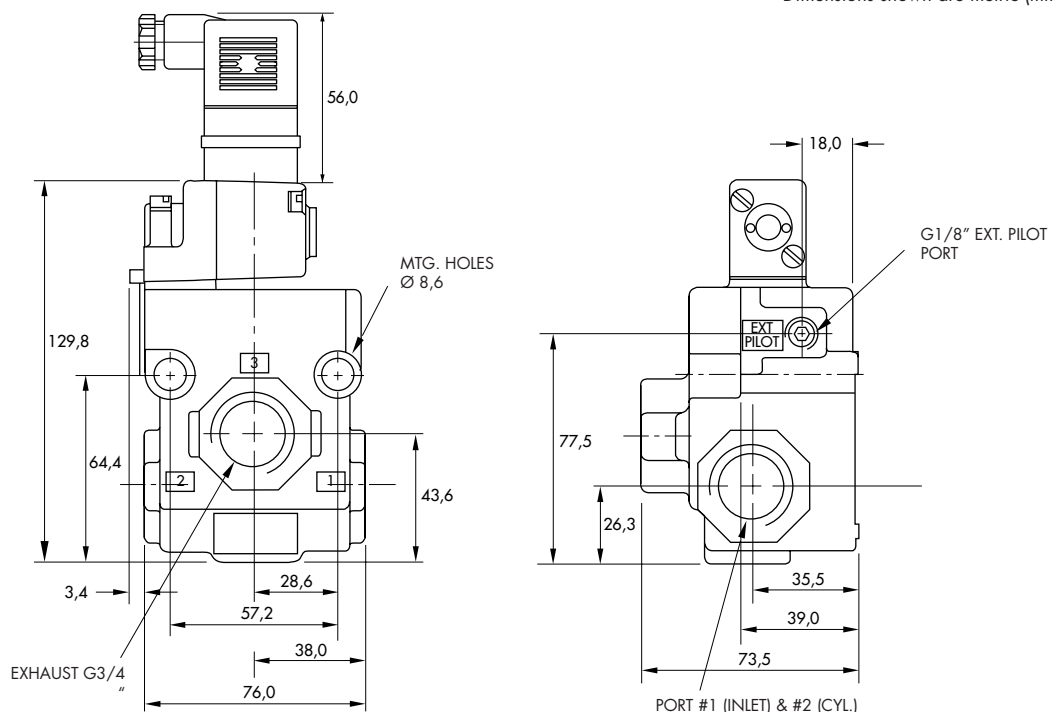
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 32184 and seal 16234.
- Pilot valve : 130B-XXYZ, including function plate A2-7009. • Pilot mounting screws kit : N-56002.
- Check valve : 70063.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

35

100

200

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56

57

58

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45

700

900

82

6300

6500

6600

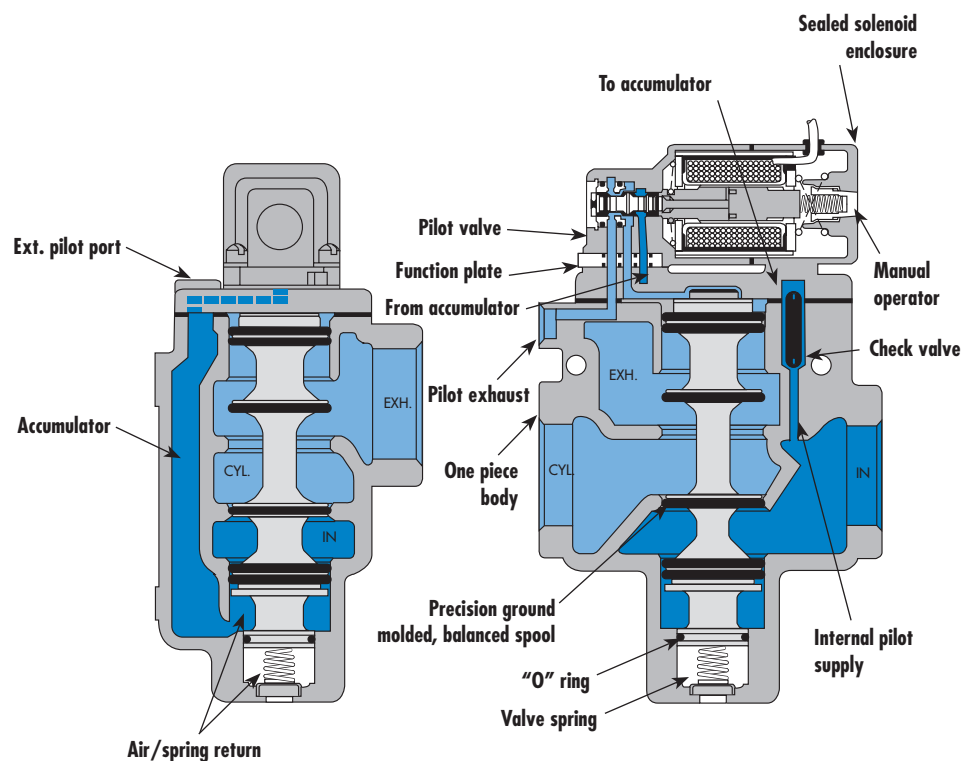
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

- The patented MACSOLENOID with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.



VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 1.7 bar main valve pressures on solenoid models.
- Manual and mechanical operators available.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

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

- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. 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 1.7 bar. 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 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

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

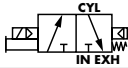
OPERATIONAL BENEFITS

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



35
100
200
55
56
57

HOW TO ORDER

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

58
59

45

700

900

SOLENOID OPERATOR ➤

XX Y ZZ*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	0	No operator	JA	Square connector
12	220V~/50Hz	1	Non-locking	JC	Square connector with light
22	24V~/50Hz	2	Locking	BA	Flying leads (45 cm)
52	24V=/2,5W				
78	24V=/24W				
61	24V=/8,5W				

82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

* Other options available, see page 305.

Note : Exhaust port is G1"

TECHNICAL DATA

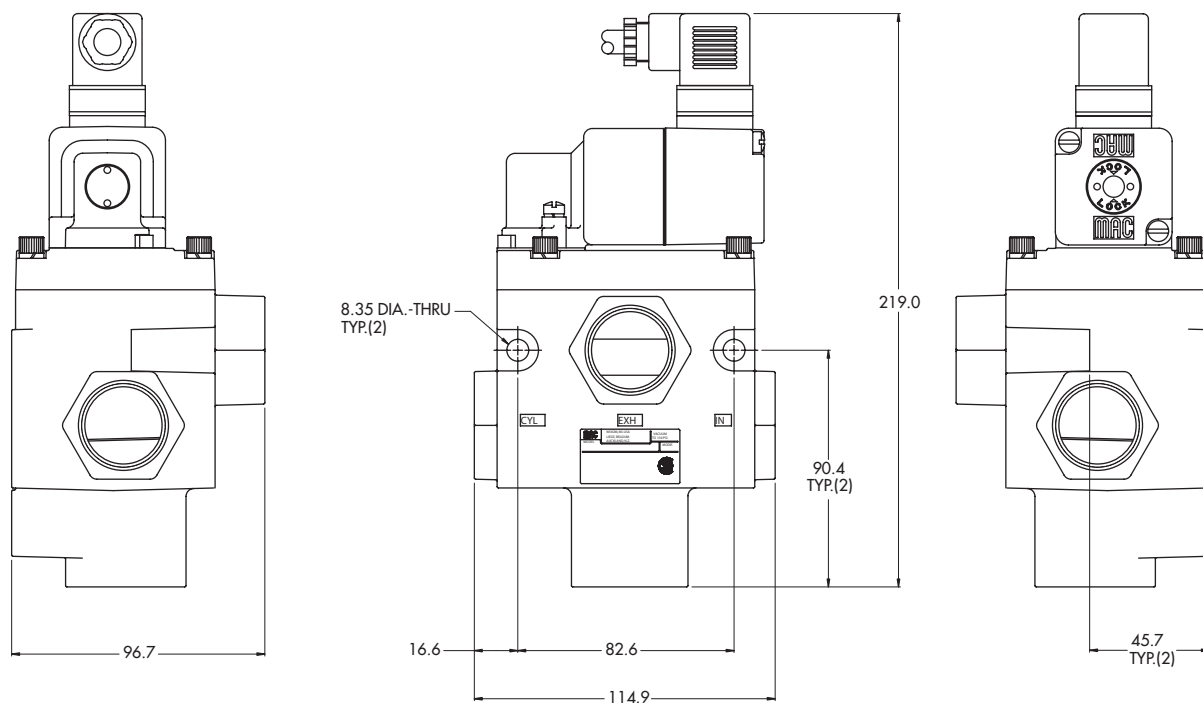
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : G1/2" : 9000 NI/min, G3/4" : 12700 NI/min, G1" : 15900 NI/min, Norm. Open : G1/2" : 10000 NI/min, G3/4" : 13700 NI/min, G1" : 17400 NI/min
Coil :	
Voltage range :	General purpose class A, continuous duty, encapsulated
Protection :	-15% to +10% of nominal voltage
Power :	Consult factory ~ Inrush : 33 VA Holding : 19.7 VA
Response times :	= 1 to 24 W 24 V= / 8.5 W Energize : 23 ms De-energize : 13ms 50 Hz/ 6 W Energize : 9-16 ms De-energize : 11-22 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

35

100

200

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56

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45

700

900

82

6300

6500

6600

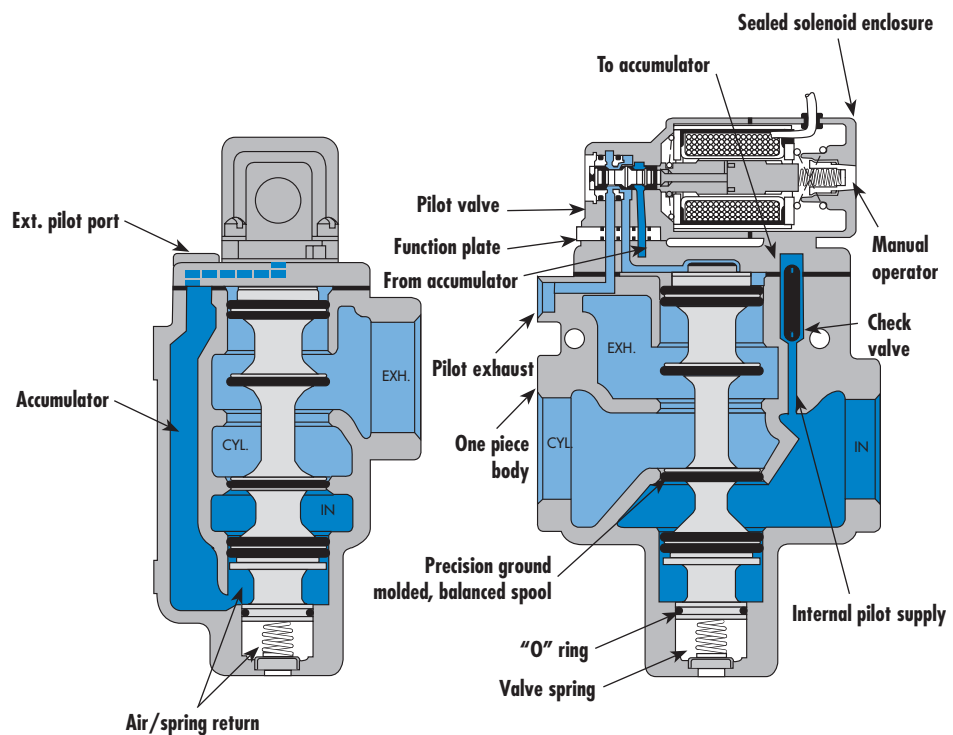
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

- The patented MACSOLENOID with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.



VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open & Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 1.7 bar main valve pressures on solenoid models.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

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

- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. 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 1.7 bar. 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 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1" - G1 1/4" - G1 1/2"	26000 NI/min	inline	

OPERATIONAL BENEFITS

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



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700

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6300

6500

6600

1300

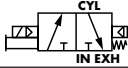
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	NO only valve		
		NC pilot - NC spool	NO pilot - NC spool	NC pilot - NO spool
				
G1"	Internal	58D-14- XXYYZZ	58D-24- XXYYZZ	58D-64- XXYYZZ
G1 1/4"		58D-15- XXYYZZ	58D-25- XXYYZZ	58D-65- XXYYZZ
G1 1/2"		58D-16- XXYYZZ	58D-26- XXYYZZ	58D-66- XXYYZZ
G1"	External	58D-34- XXYYZZ	58D-44- XXYYZZ	58D-74- XXYYZZ
G1 1/4"		58D-35- XXYYZZ	58D-45- XXYYZZ	58D-75- XXYYZZ
G1 1/2"		58D-36- XXYYZZ	58D-46- XXYYZZ	58D-76- XXYYZZ

SOLENOID OPERATOR ➤

XX Y ZZ*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	0	No operator	JA	Square connector
12	220V~/50Hz	1	Non-locking	JC	Square connector with light
22	24V~/50Hz	2	Locking	BA	Flying leads (45 cm)
52	24V=/2,5W				
78	24V=/24W				
61	24V=/8,5W				

* Other options available, see page 305.

Note : Exhaust port is G1 1/2"

TECHNICAL DATA

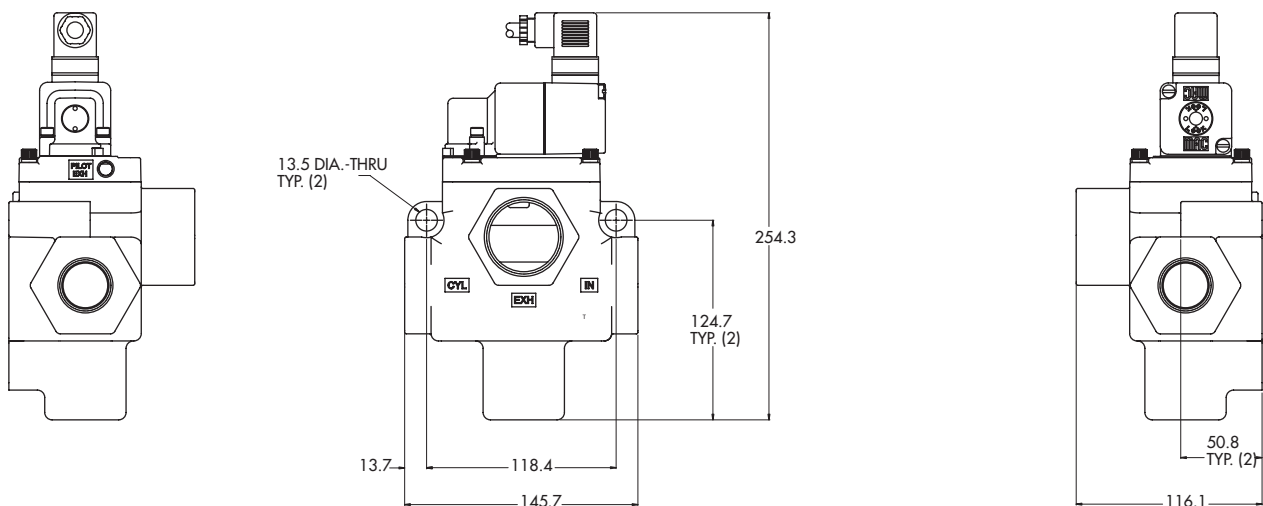
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : G1" : 18700 NI/min, G1 1/4" : 23000 NI/min, G1 1/2" : 24900 NI/min, Norm. Open : G1" : 20800 NI/min, G1 1/4" : 23800 NI/min, G1 1/2" : 26000 NI/min
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 V= / 8.5 W Energize : 25 ms De-energize : 18ms 50 Hz/ 6 W Energize : 10-17 ms De-energize : 17-22 ms

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

Options :
 • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

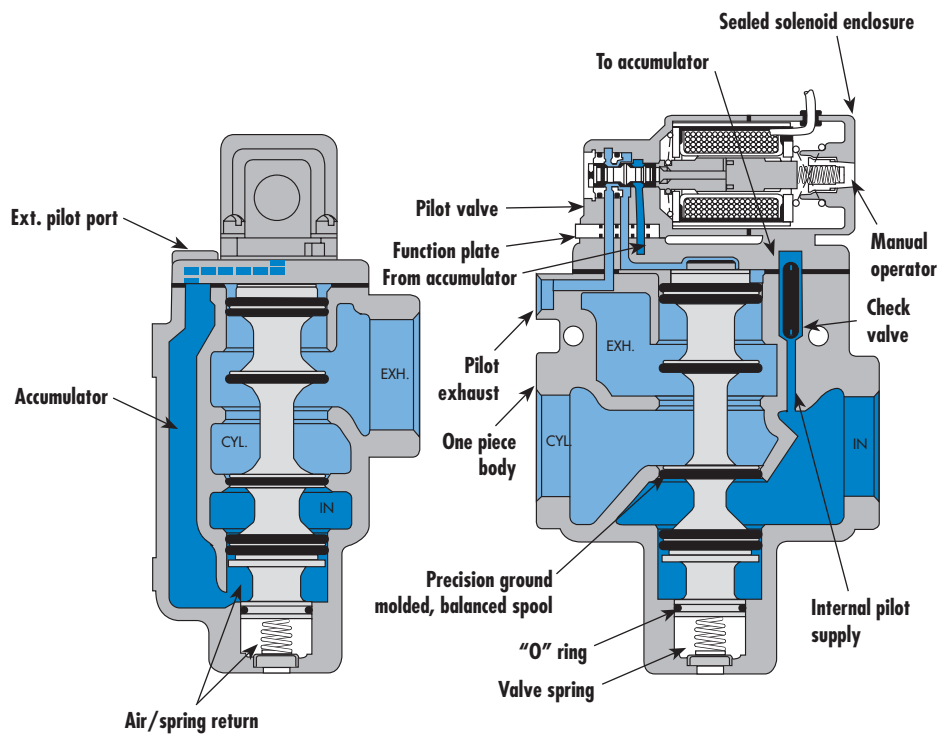
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

- The patented MACSOLENOID with its non-burn out feature on AC service.
- Seven valve functions in one valve.
- Balanced spool unaffected by back pressure in the exhaust.
- A large checked accumulator which supplies the pilot and air/spring return for consistent shifting.
- A triple rated coil for 120/60, 110/50 or 24 VDC (6 Watt).
- Use on lube or non-lube service.
- Various types of manual operators and solenoid enclosures.
- Optional low wattage DC coils down to 1 watt.



VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open (solenoid) or Normally Closed (solenoid or remote air).
- 2-Way (by plugging Exhaust port), Normally Open (solenoid) & Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 1.7 bar main valve pressures on solenoid models.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

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

- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.
- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. 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 1.7 bar. 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 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G2" - G2 1/2"	60000 NI/min	inline	

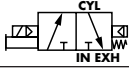
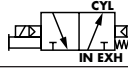
OPERATIONAL BENEFITS

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



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58
59

HOW TO ORDER

Port size	Pilot air	NC only valve NC pilot - NC spool	NO only valve NO pilot - NC spool
			
G2"	Internal	59B-15- XXYZZ	59B-25- XXYZZ
G2 1/2"		59B-16- XXYZZ	59B-26- XXYZZ
G2"	External	59B-35- XXYZZ	59B-45- XXYZZ
G2 1/2"		59B-36- XXYZZ	59B-46- XXYZZ

SOLENOID OPERATOR ➤

XX Y ZZ*

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	110V~/50Hz	0	No operator	JA	Square connector
12	220V~/50Hz	1	Non-locking	JC	Square connector with light
22	24V~/50Hz	2	Locking	BA	Flying leads (45 cm)
52	24V=/2,5W				
78	24V=/24W				
61	24V=/8,5W				

* Other options available, see page 305.

Note : Exhaust port is G2 1/2"

700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

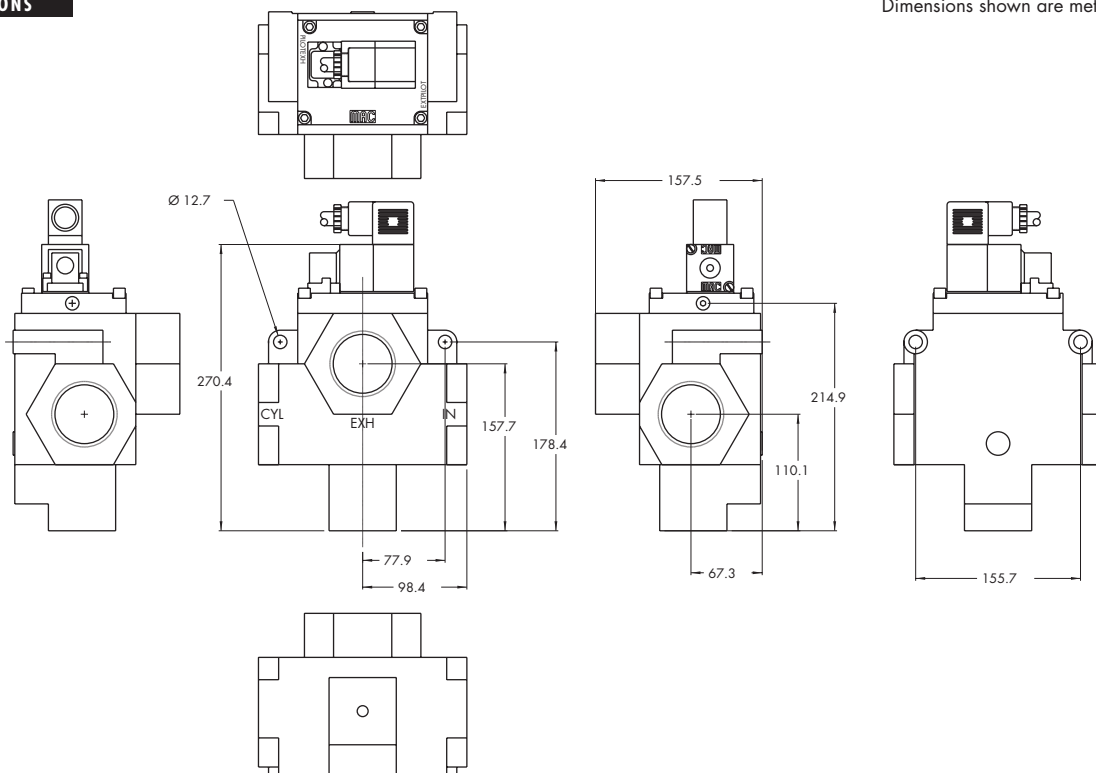
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G2" : 55000 NI/min, G2 1/2" : 60000 NI/min
Coil :	1 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 V= / 8.5 W Energize : 38 ms De-energize : 25ms 50 Hz/ 6 W Energize : 35-45 ms De-energize : 25-34 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



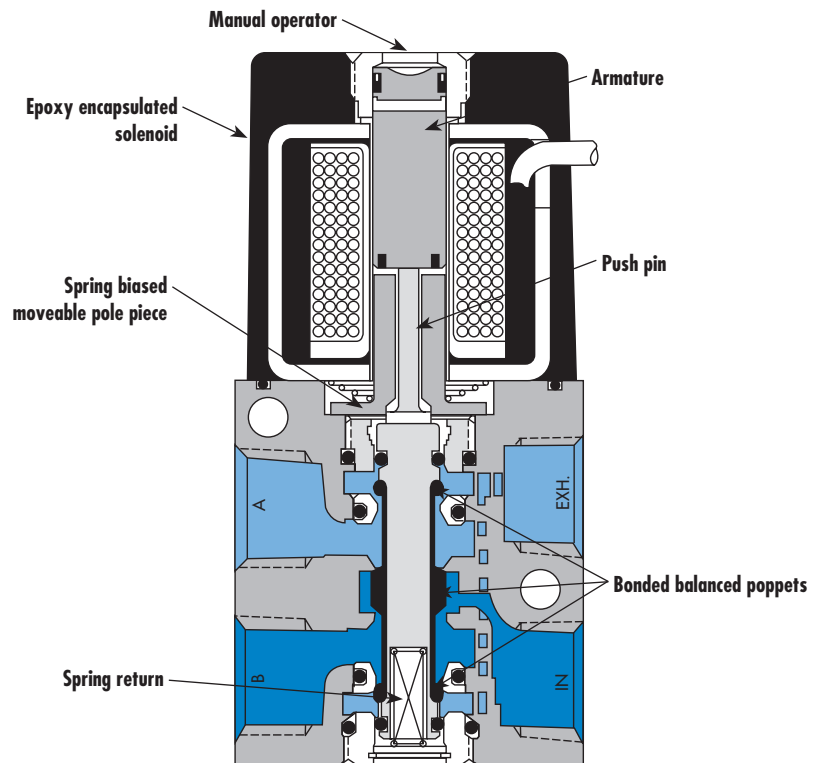
Individual mounting

inline	sub-base non "plug-in"
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Series

Manifold mounting

stacking	sub-base non "plug-in"	sub-base with pressure regulators	sub-base with pressure regulators and flow controls	manifold base "plug-in"	manifold base "plug-in" with pressure regulators	manifold base "plug-in" with flow controls	manifold base "plug-in" with regulator and flow controls
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SERIES FEATURES

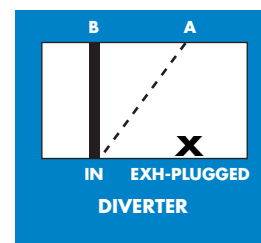
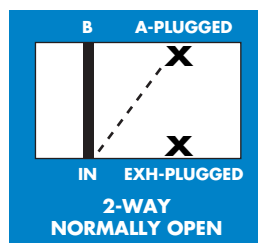
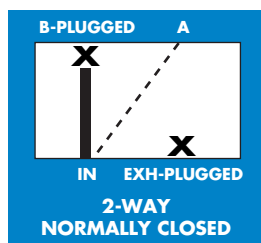
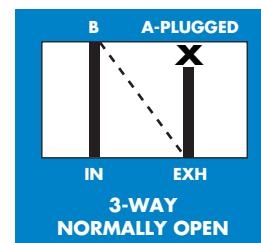
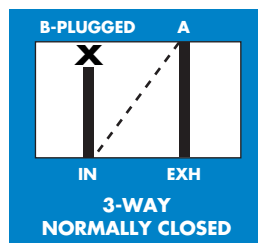
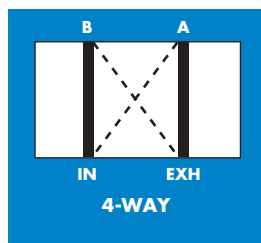
- Single and double solenoid or remote air.
- The patented MACSOLENOID for fastest possible response times.
- Bonded balanced poppets for high flow, precise repeatability, and consistent operation.
- Balanced poppet design permits versatility in piping. Valves can be piped as 4-way, 3-way or 2-way, normally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

VALVE CONFIGURATIONS AVAILABLE

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

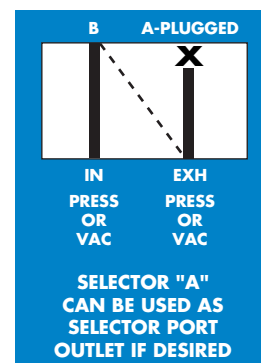
SPECIAL APPLICATIONS :

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



Operator De-Energized —————

Operator Energized - - - - -



Function	Port size	Flow [Max]	Individual mounting	Series
4/2	M5 - G1/8"	150 NI/min	inline	

OPERATIONAL BENEFITS

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



35

100

200

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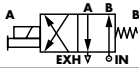
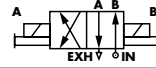
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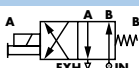
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45

HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
G1/8"	45A-AC1-Dxxx-xxx	45A-GC1-Dxxx-xxx
M5	45A-AD1-Dxxx-xxx	45A-GD1-Dxxx-xxx

WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
G1/8"	45A-AC2-Dxxx-xxx	45A-GC2-Dxxx-xxx
M5	45A-AD2-Dxxx-xxx	45A-GD2-Dxxx-xxx

700

900

82

SOLENOID OPERATOR ➤

D **XX X- X XX** *

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

6300

6500

6600

1300

* Other options available, see page 309.

BOTTOM PORT OPTIONS (O'RING MOUNT)

45A-XXX-D xxx-xxx

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

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 100 NI/min, 5.4 W : 150 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V= / 5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz / 6 W	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

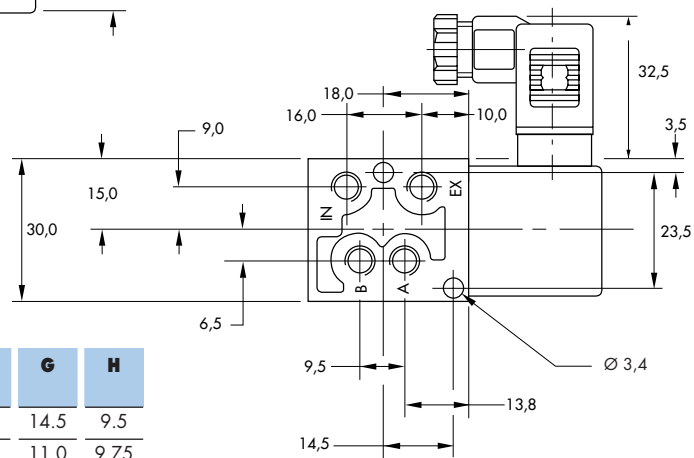
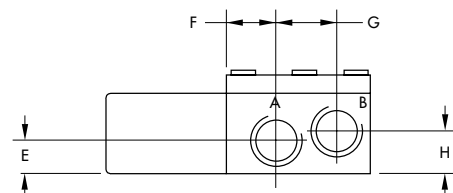
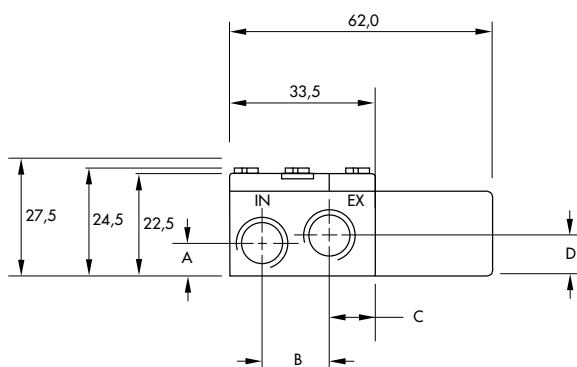
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Valve cover plate with flow controls : N-45002.

Options :

- NPTF threads. • High flow up to 230 NI/min, according to wattage and high flow Mod. • NAMUR interface - 45A-FA1DXXX-XXX and required NAMUR adapter kit: N-45028-03 (for 3-way operation) - N-45028-04 (for 4-way operation).

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F	G	H
G1/8"	7.5	16.0	10.0	9.5	7.5	11.5	14.5	9.5
M5	9.75	14.0	10.5	9.75	9.75	13.0	11.0	9.75

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	M5 - G1/8"	130 NI/min	sub-base non"plug-in"	

OPERATIONAL BENEFITS

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



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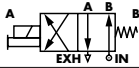
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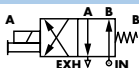
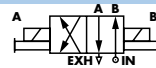
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45

HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
Valve less base	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
G1/8" base	45A-LCA-Dxxx-xxx	45A-NCA-Dxxx-xxx
M5 base	45A-LDA-Dxxx-xxx	45A-NDA-Dxxx-xxx

WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
Valve less base	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
G1/8" base	45A-LCB-Dxxx-xxx	45A-NCB-Dxxx-xxx
M5 base	45A-LDB-Dxxx-xxx	45A-NDB-Dxxx-xxx

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

SOLENOID OPERATOR >

D **XX X- X XX** *

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

* Other options available, see page 309.

OPTIONS

45A-LCA-D xxx-xxx

Substitute "K" for G1/8" bottom cylinder ports

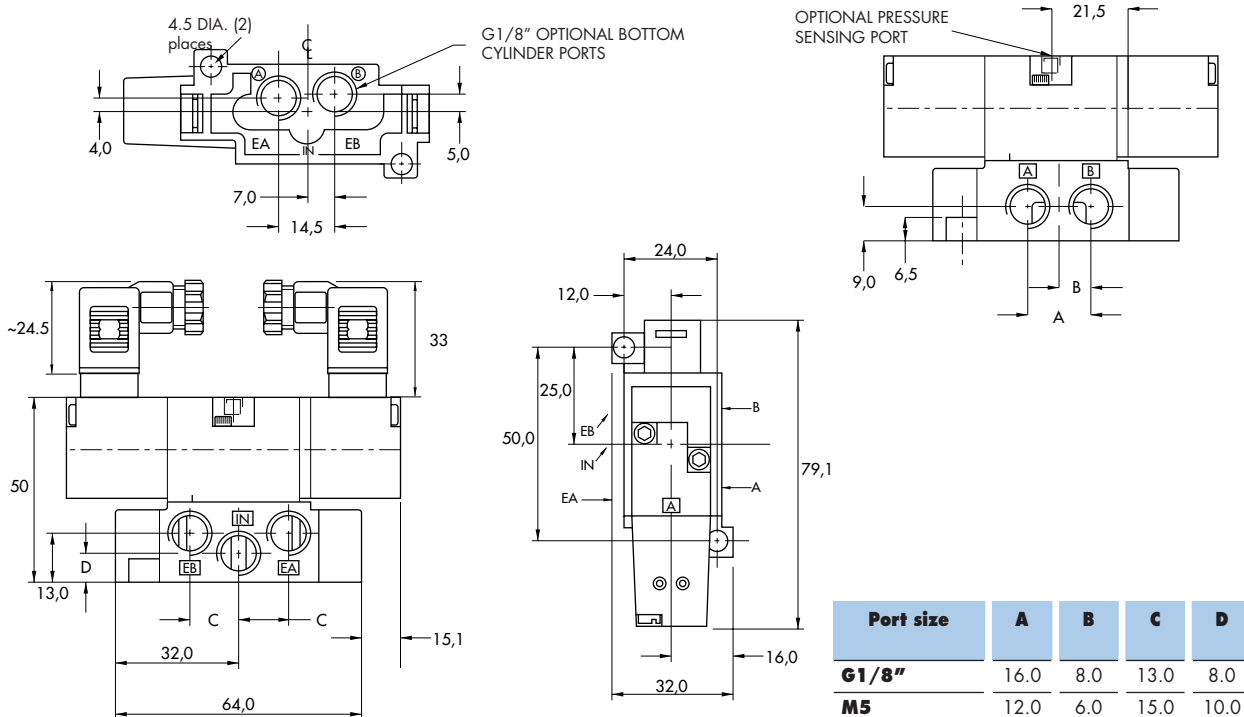
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 110 NL/min, 5.4 W : 130 NL/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

- Spare parts :
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
 - Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Flow control : N-45018.
- Options :
- NPTF threads. • High flow up to 200 NL/min, according to wattage and high flow mod.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	200 NI/min	stacking	

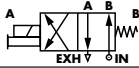
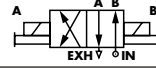
OPERATIONAL BENEFITS

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

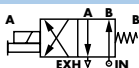
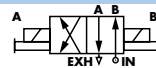


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200
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59

HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
G1/8"	45A-SC1-Dxxx-xxx	45A-TC1-Dxxx-xxx
M5	45A-SD1-Dxxx-xxx	45A-TD1-Dxxx-xxx

WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator
		
G1/8"	45A-SC2-Dxxx-xxx	45A-TC2-Dxxx-xxx
M5	45A-SD2-Dxxx-xxx	45A-TD2-Dxxx-xxx

45

700
900
82

SOLENOID OPERATOR >

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size G1/4") : M-45001-01P.

6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 140 NL/min, 5.4 W : 200 NL/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

Spare parts :

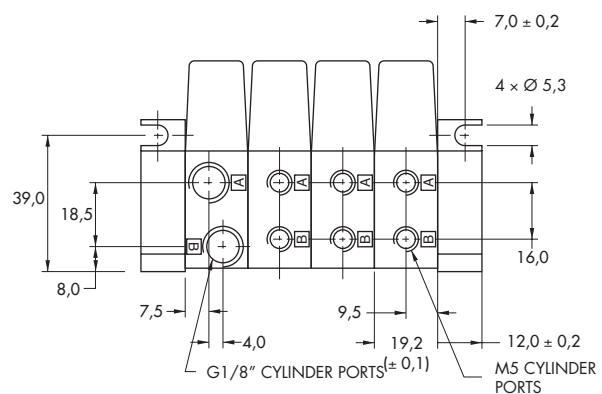
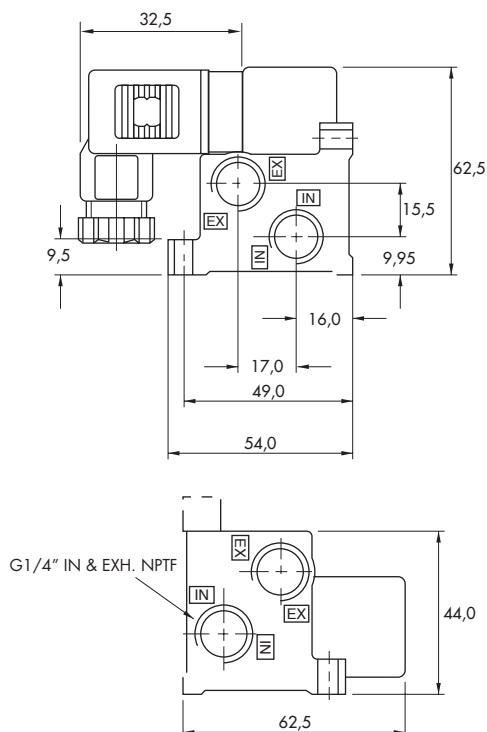
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal (between solenoid and valve body) : 16402. • Seal between valves : 16422. • Tie-rod (x2) : 19813.
- Valve cover plate with flow controls : N-45004.
- Inlet & exhaust isolator : N-45005. Inlet isolator : N-45006. Exhaust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

Options :

- NPTF threads. • High flow up to 300 NL/min, according to wattage and high flow mod.

DIMENSIONS

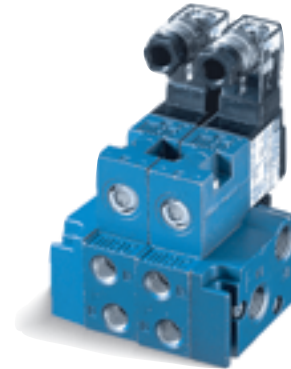
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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



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6300

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1300

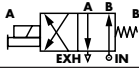
800

ISO 1

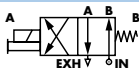
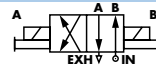
ISO 2

ISO 3

HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
Valve less base	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
G1/8" base	45A-LCC-Dxxx-xxx	45A-NCC-Dxxx-xxx
M5 base	45A-LDC-Dxxx-xxx	45A-NDC-Dxxx-xxx

WITH INTEGRATED FLOW CONTROLS

Port size	Single operator	Double operator (Minimum DC wattage 5.4W)
		
Valve less base	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
G1/8" base	45A-LCD-Dxxx-xxx	45A-NCD-Dxxx-xxx
M5 base	45A-LDD-Dxxx-xxx	45A-NDD-Dxxx-xxx

SOLENOID OPERATOR ➤

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size G1/4") : M-45008-01P

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 W : 110 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V= / 5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz / 6 W	Energize : 3-8 ms	De-energize : 2-7 ms

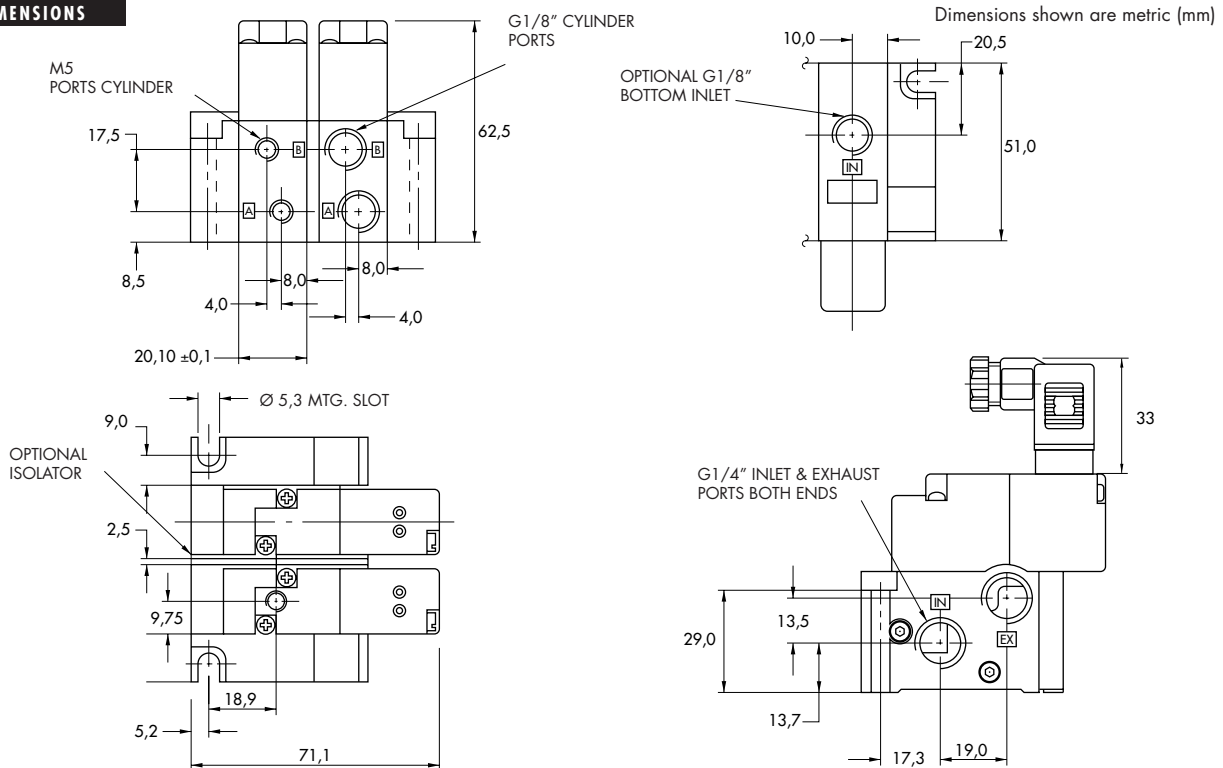
Spare parts :

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

Options :

- NPTF threads. • High flow up to 180 NI/min, according to wattage and high flow Mod. • Bottom inlet : specify Mod. 0210.

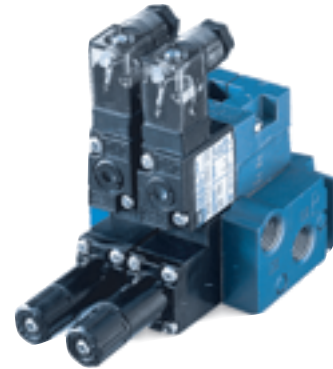
DIMENSIONS



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	sub-base with pressure regulators	

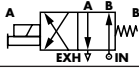
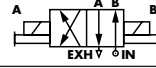
OPERATIONAL BENEFITS

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



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HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
Valve less base	45A-L00-DXXX-XXX	45A-N00-DXXX-XXX
G1/8" base	45A-ICJ-DXXX-XXX	45A-NCJ-DXXX-XXX
M5 base	45A-LDJ-DXXX-XXX	45A-NDJ-DXXX-XXX

45

SOLENOID OPERATOR ►

D **XX X- X XX** *

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

700
900
82

* Other options available, see page 309.

End plate kit required (Port size G1/4") : M-45008-01P.

Options (with gauge port) : Single operator : replace L by M.
Double operator : replace N by P.

REGULATOR OPTIONS

45A-XXJ-D XXX-XXX ("J" is for Adj. knob)

- Replace with "E" for slotted stem
- Replace with "G" for locking slotted stem

6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

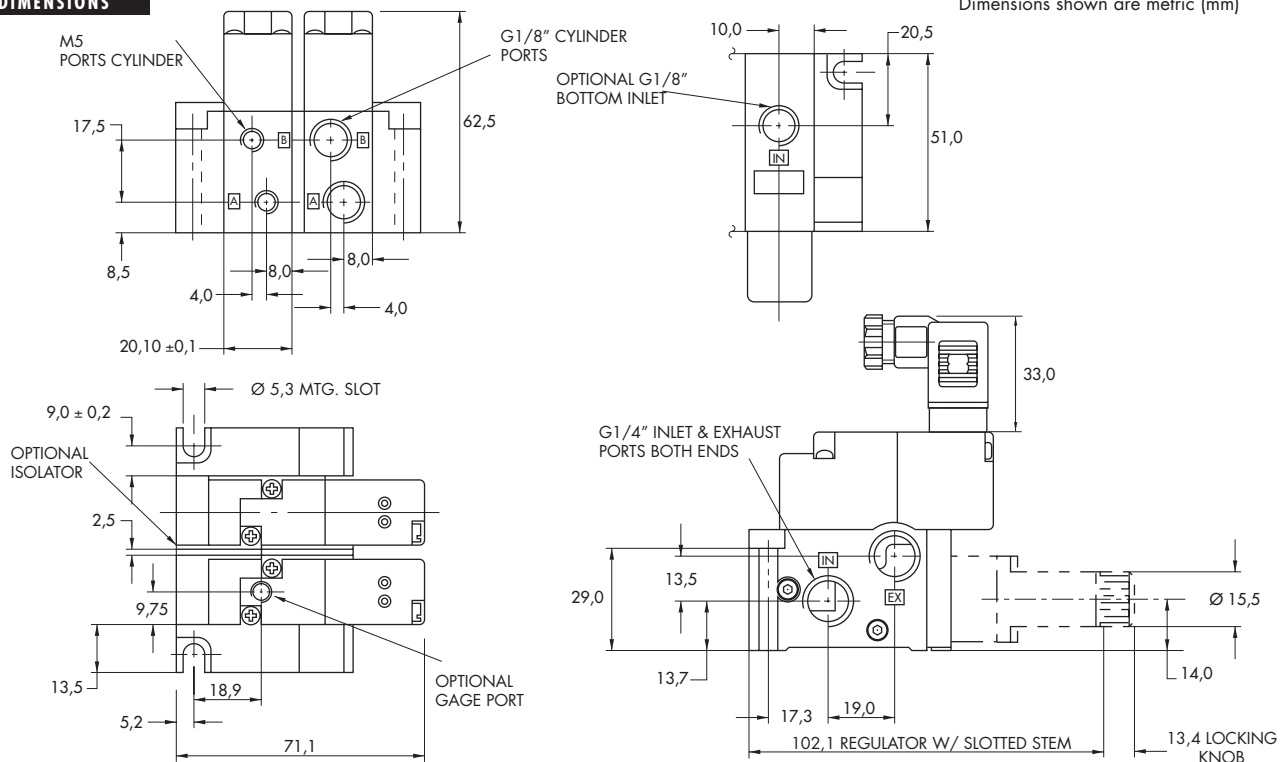
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 W : 110 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

- Spare parts :
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
 - Seal (between solenoid and valve body) : 16402. • Seal between base and valve : 16453. • Seal between bases : 16455.
 - Tie-rod (x2) : 19753. • Pressure regulator : 45A-00R (Adj. Knob), 45A-00L (Slotted Stem), 45A-00M (Locking Slotted Stem).
 - Inlet & exhaust isolator : N-45008. • Inlet isolator : N-45009. • Exhaust isolator : N-45010.
- Options :
- NPTF threads. • High flow up to 180 NI/min, according to wattage and high flow mod. • Bottom inlet : specify Mod. 0210.

DIMENSIONS

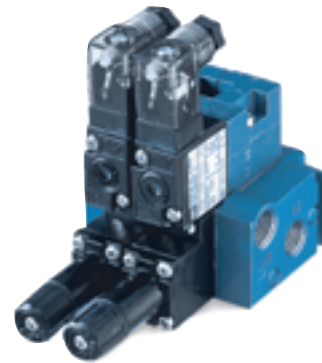
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	sub-base with pressure regulators and flow controls	

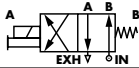
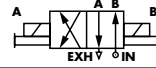
OPERATIONAL BENEFITS

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



35
100
200
55
56
57
58
59

HOW TO ORDER

Port size	Single operator	Double operator (Minimum DC wattage 5,4W)
		
Valve less base	45A-L00-Dxxx-xxx	45A-N00-Dxxx-xxx
G1/8" base	45A-LCK-Dxxx-xxx	45A-NCK-Dxxx-xxx
M5 base	45A-LDK-Dxxx-xxx	45A-NDK-Dxxx-xxx

45

SOLENOID OPERATOR ►

D **XX X- X XX** *

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

* Other options available, see page 309.

End plate kit required (Port size G1/4") : M-45008-01P.

Options (with gauge port) : Single operator : replace L by M
Double operator : replace N by P.

REGULATOR AND F.C. OPTIONS

45A-XXK-D xxx-xxx ("K" option is for Adj. knob and F.C.)

Replace with "F" for slotted stem and F.C.

Replace with "H" for locking slotted stem and F.C.

700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Vacuum to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 W : 110 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W		
Response times :	24 V=5.4 W	Energize : 6 ms	De-energize : 2 ms
	50 Hz/6 W	Energize : 3-8 ms	De-energize : 2-7 ms

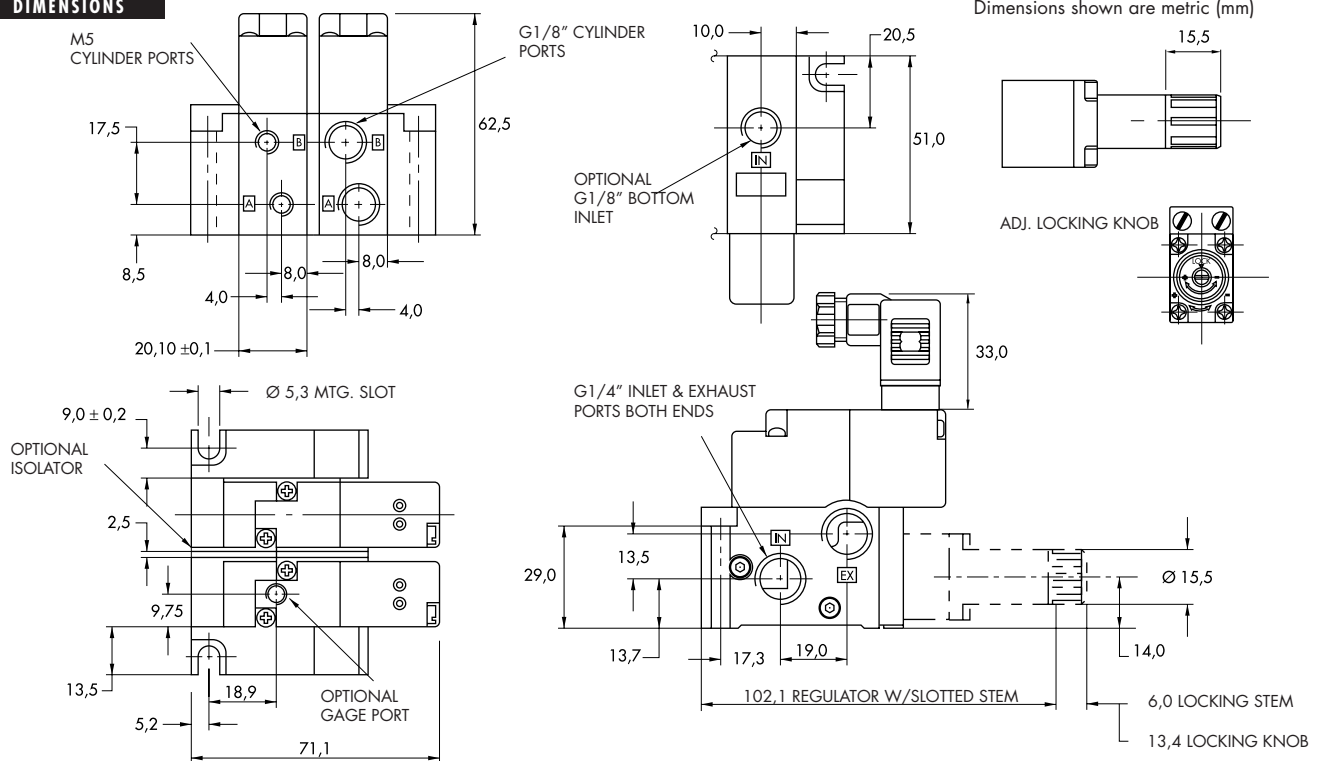
Spare parts :

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

Options :

- NPTF threads. • High flow up to 180 NI/min, according to wattage and high flow Mod. • Bottom inlet : specify Mod. 0210.

DIMENSIONS



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	Manifold base plug-in	

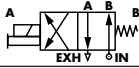
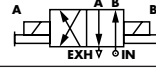
OPERATIONAL BENEFITS

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



35
100
200
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57
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59

HOW TO ORDER

Port size	Single operator	Double operator
		
Valve less base	45A-L00-00-DxxJ-xxx	45A-N00-00-DxxJ-xxx
G1/8"	45A-LSB-AC-DxxJ-xxx	45A-NSB-BL-DxxJ-xxx
M5	45A-LSE-AC-DxxJ-xxx	45A-NSE-BL-DxxJ-xxx

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

45
700

SOLENOID OPERATOR ►

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

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

* Other options available, see page 361.

900
82

OPTIONS

45A- L SB-A C -DxxJ-xxx

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

Example: base only: 45A-0SB-AC (1/8" BSP wired for single operator)
End plate kit required : M-45028-01P

6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

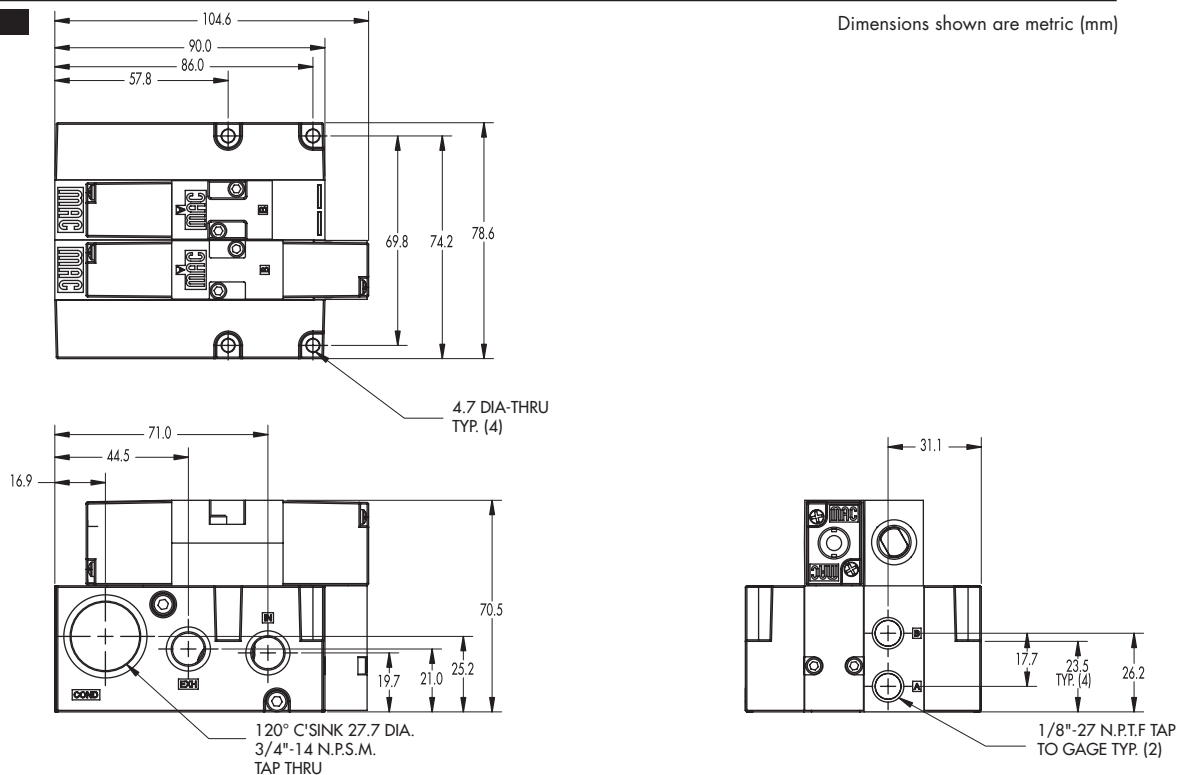
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar) :	1.8 W : 90 NI/min, 5.4 W : 110 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W

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

Options : • NPTF threads

DIMENSIONS

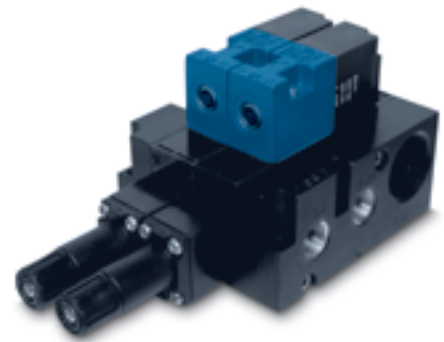
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	Manifold base plug-in with pressure regulators	

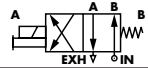
OPERATIONAL BENEFITS

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



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100
200
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56
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58
59

HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-D XXJ - XXX
G1/8"	45A-LSB-AJ-D XXJ - XXX
M5	45A-LSE-AJ-D XXJ - XXX

45

Note : Bottom cylinder ports only with the regulator option.

700
900

SOLENOID OPERATOR ►

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

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

82

6300
6500
6600
1300

* Other options available, see page 361.

OPTIONS

45A-LSB-AJ-D XXJ - XXX	J Regulator with adjusting knob E Regulator with slotted stem G Regulator with locking slotted stem O Base only – no valve L Single solenoid - Base mount body M Single solenoid - Base mount body with gage port
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Example: base only with regulator: 45A-0SB-AJ
End plate kit required : M-45028-01P

800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

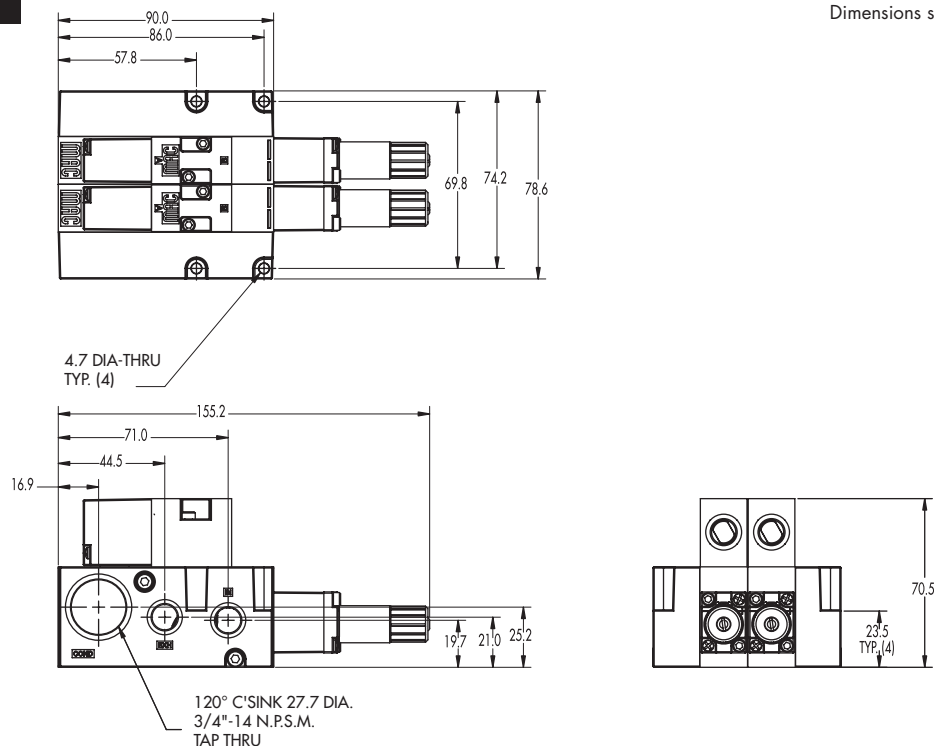
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (90 NI/min), 5.4 W : (110 NI/min)
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W

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

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	Manifold base plug-in with flow controls	

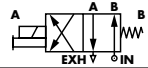
OPERATIONAL BENEFITS

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



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HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-D XXJ-XXX
G1/8"	45A-LSB-AD-D XXJ-XXX
M5	45A-LSE-AD-D XXJ-XXX

45

SOLENOID OPERATOR ►

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

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

* Other options available, see page 361.

OPTIONS

45A-LSB-A D-D**XXJ-XXX**

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

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

700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

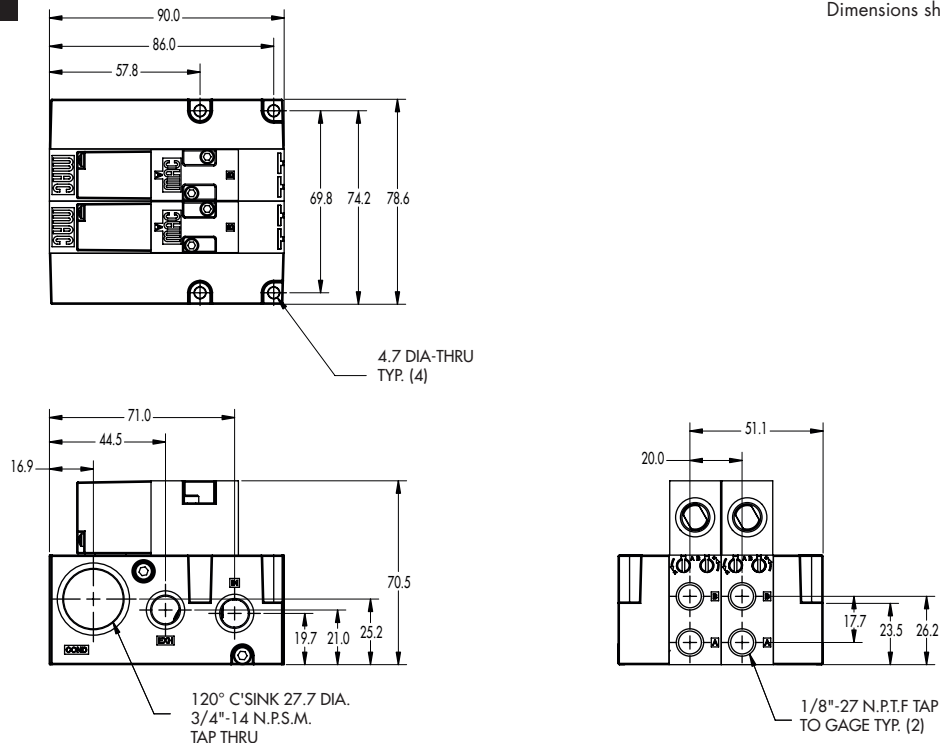
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (90 NI/min), 5.4 W : (110 NI/min)
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W

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

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	M5 - G1/8"	110 NI/min	Manifold base plug-in with regulator & flow controls	

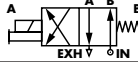
OPERATIONAL BENEFITS

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



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100
200
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59

HOW TO ORDER

Port size	Single operator
	
Valve less base	45A-L00-00-DxxJ-xxx
G1/8"	45A-LSB-AK-DxxJ-xxx
M5	45A-LSE-AK-DxxJ-xxx

45

SOLENOID OPERATOR ►

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

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

* Other options available, see page 361.

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

OPTIONS

45A-LSB-AK-DxxJ-xxx

- F** Regulator with slotted stem & flow controls
- H** Regulator with locking slotted stem & flow controls
- K** Regulator with adjusting knob & flow controls
- O** Base only – no valve
- L** Single solenoid - Base mount body
- M** Single solenoid - Base mount body with gage port

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

700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

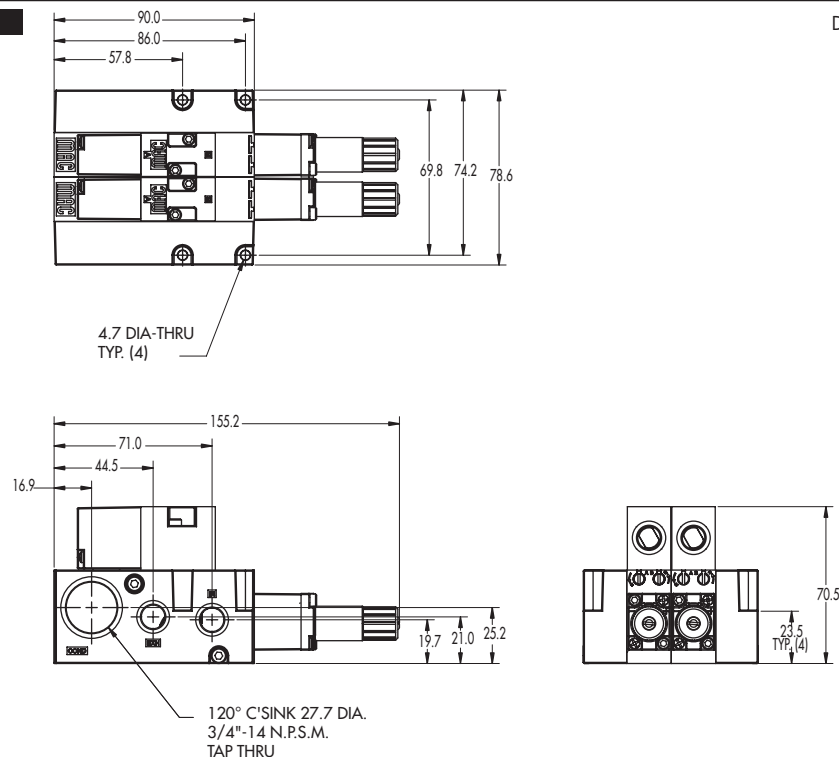
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar) :	1.8 W : (90 NI/min), 5.4 W : (110 NI/min)
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power : 120 VAC : DC	~ Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W

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

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

inline

Series

Manifold mounting

stacking

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

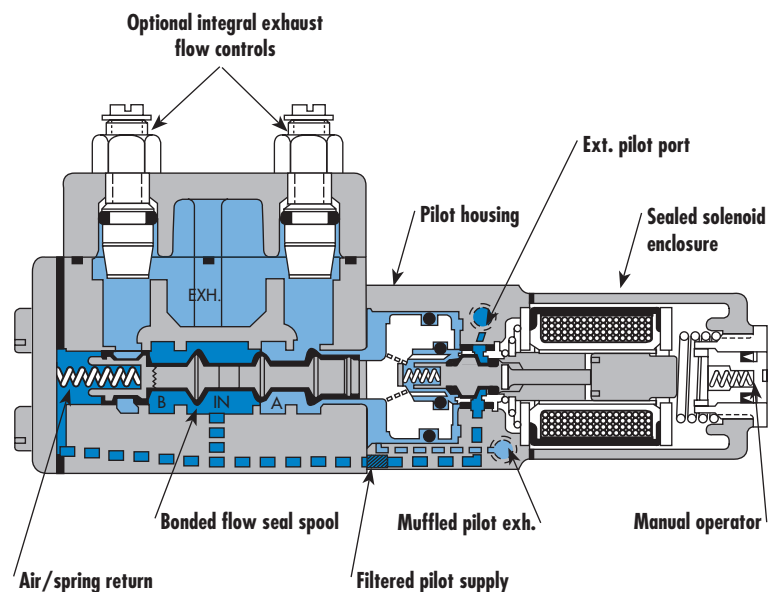
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

The 700 Series is a compact 4-way valve with a flow of up to 800 NI/min. 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 1.3 bar 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 1.3 bar 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 1.3-10 bar, 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 1.3 bar on single operator or 0.7 bar on double operator models. Single operators require MOD 158-heavy duty spring. Pipe using either an M5x0.8 or a M5 fitting to the external pilot port. To convert from internal to external pilot, simply rotate pilot housing 180° and install heavy duty spring.
- **VACUUM APPLICATIONS**-Use external pilot models only, without flow controls and connect vacuum source to the exhaust port and leave the inlet open to atmosphere.
- **SELECTOR APPLICATIONS**-Use models without flow controls, connect the higher pressure to the inlet port and lower pressure to the exhaust port.

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	G1/8" - G1/4"	700 NI/min	inline	

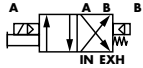
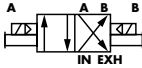
OPERATIONAL BENEFITS

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

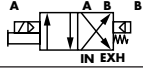
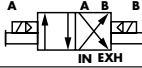


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HOW TO ORDER

Port size	Pilot air	Single operator	Double operator
			
G1/8"	Internal	711C-13-PI- XXYZZ	721C-13-PI- XXYZZ
G1/4"	Internal	711C-14-PI- XXYZZ	721C-14-PI- XXYZZ
G1/8"	External	711C-13-PE- XXYZZ	721C-13-PE- XXYZZ
G1/4"	External	711C-14-PE- XXYZZ	721C-14-PE- XXYZZ

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
G1/8"	Internal	712C-13-PI- XXYZZ	722C-13-PI- XXYZZ
G1/4"	Internal	712C-14-PI- XXYZZ	722C-14-PI- XXYZZ
G1/8"	External	712C-13-PE- XXYZZ	722C-13-PE- XXYZZ
G1/4"	External	712C-14-PE- XXYZZ	722C-14-PE- XXYZZ

45
700
900
82

SOLENOID OPERATOR ➤

XX Y ZZ*

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

6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

* Other options available, see page 305.

OPTIONS

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

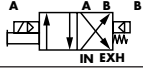
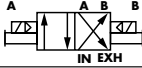
- For bottom ports (G1/8" only) replace by 2.

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	G1/8" - G1/4"	800 NI/min	stacking	

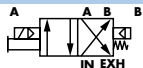
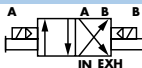
OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	Single operator	Double operator
			
G1/8"	Internal	713C-13-PI- XXYYZZ	723C-13-PI- XXYYZZ
G1/4"		713C-14-PI- XXYYZZ	723C-14-PI- XXYYZZ

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
G1/8"	Internal	714C-13-PI- XXYYZZ	724C-13-PI- XXYYZZ
G1/4"		714C-14-PI- XXYYZZ	724C-14-PI- XXYYZZ

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

End plate kit required (Port size G1/4") : M-07001-01-01P (internal pilot).
M-07001-02-01P (external pilot).

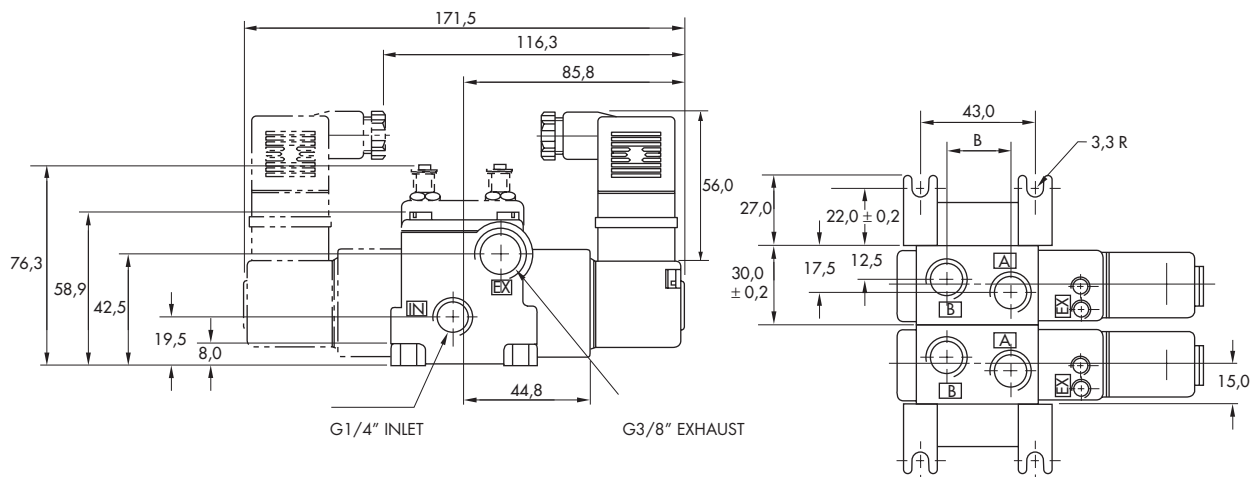
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator : 1.3 to 10 bar double operator : 0.7 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator : 1.3 to 10 bar Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 700 NI/min, G1/4" : 800 NI/min
Coil :	General purpose class A, continuous duty, encapsulated
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17.1 W
Response times :	24 V= / 8.5 W Energize : 6.4 ms De-energize : 8.5 ms 50Hz/6 W Energize : 4-10 ms De-energize : 7-13 ms

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

DIMENSIONS

Dimensions shown are metric (mm)



Port size	B
G1/8"	21.0
G1/4"	24.0

Direct solenoid and solenoid pilot operated valves

Individual mounting

inline

Series

Manifold mounting

stacking

35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

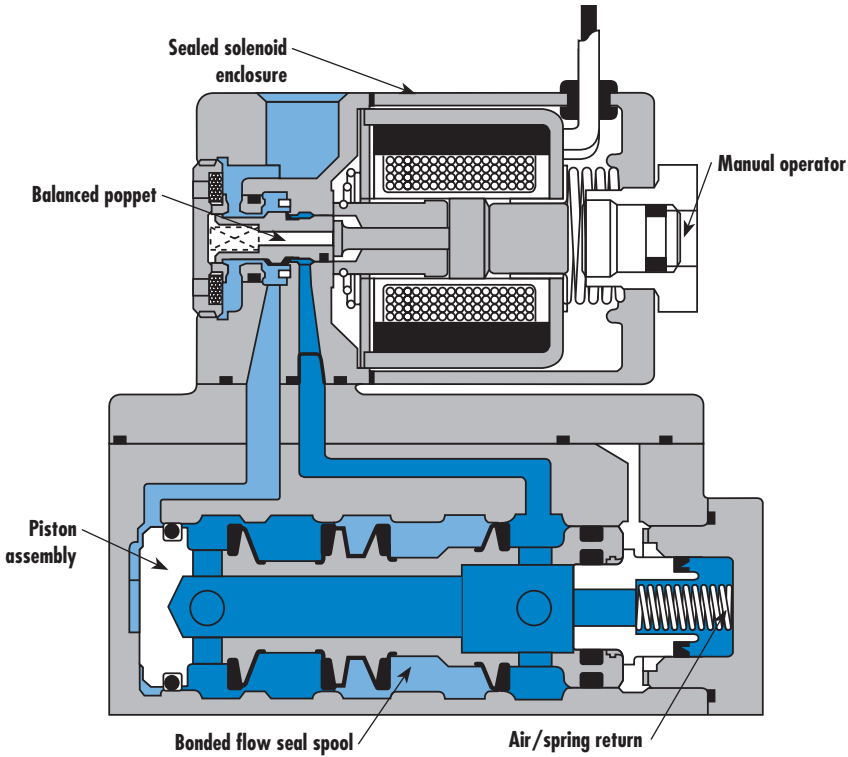
1300

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ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

The 900 Series is a small Inline 4-way valve with a flow of up to 1400 NI/min. 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 0158 which provides a heavy duty spring in lieu of air/spring.

SELECTOR APPLICATIONS-When using as a selector valve, connect the higher pressure to the Inlet port and the lower pressure to the Exhaust port. On solenoid models, the Inlet pressure must be a minimum of 1.7 bar on singles or 0.7 bar on doubles.

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	G1/8" - G1/4"	1200 NI/min	inline	

OPERATIONAL BENEFITS

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



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1300

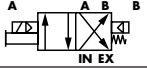
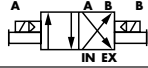
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

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

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 1.7 to 10 bar Double operator : 0.7 to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 800 NI/min, G1/4" : 1200 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 V= / 8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/ 6 W	Energize : 5-10 ms	De-energize : 8-15 ms

Spare parts :

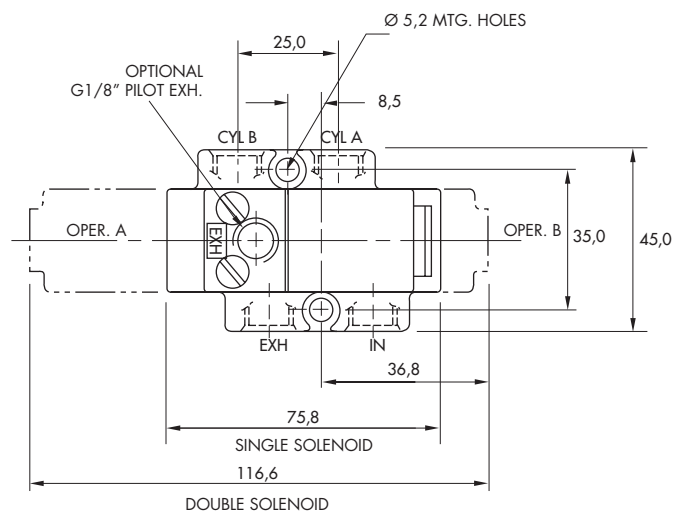
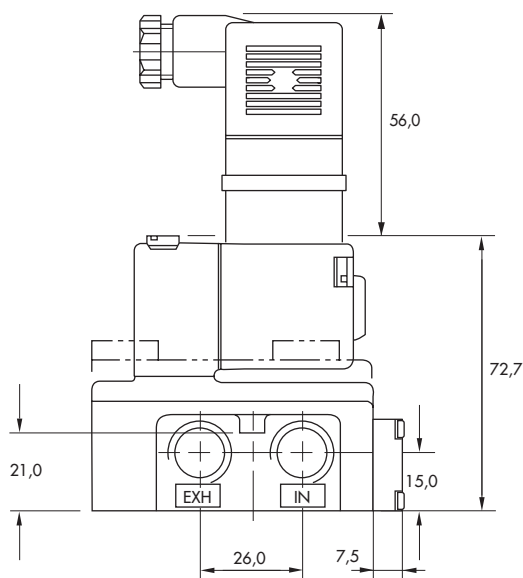
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw pilot to main valve : 35219.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	G1/8" - G1/4" - G3/8"	1400 NI/min	stacking	

OPERATIONAL BENEFITS

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



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6500

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1300

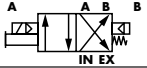
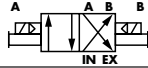
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Single operator	Double operator
		
G1/8"	917B-PM-XXYYZZ	927B-PM-XXYYZZ
G1/4"	918B-PM-XXYYZZ	928B-PM-XXYYZZ
G3/8"	919B-PM-XXYYZZ Mod 005	N/A

SOLENOID OPERATOR ➤

XX Y ZZ *

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

* Other options available, see page 305.

End plate kit required (Port size : G3/8") : M-09001-01P.

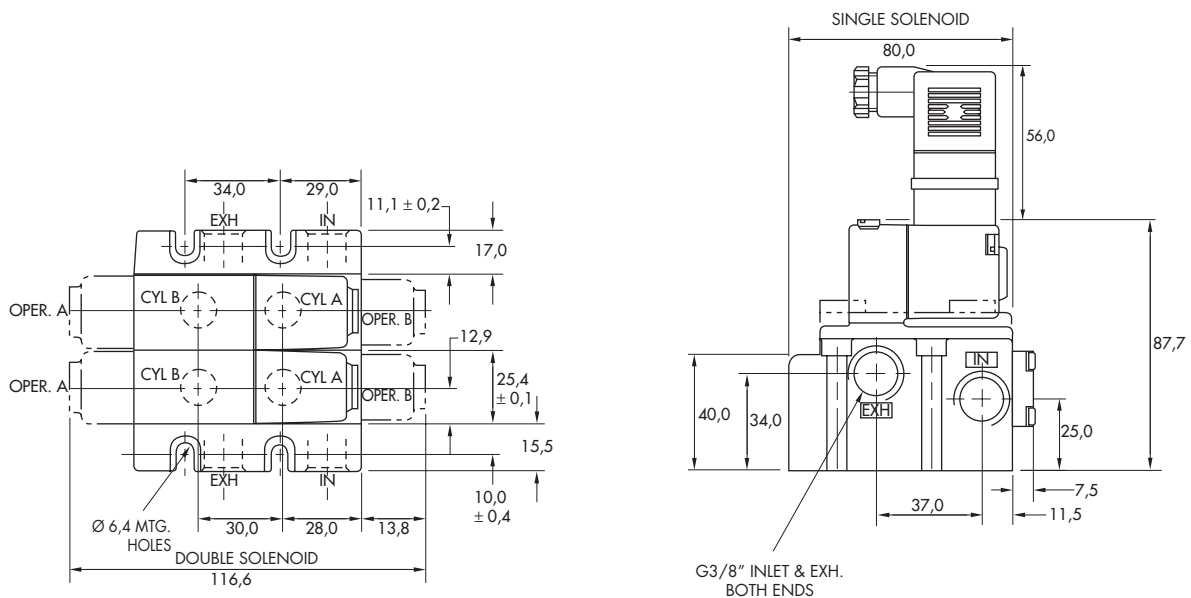
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 1.7 to 10 bar Double operator : 0.7 to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 1200 NI/min, G1/4" : 1400 NI/min, G3/8" : 1400 NI/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA Holding : 10.9 VA = 1 to 17.1 W		
Response times :	24 V= / 8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-10 ms	De-energize : 8-15 ms

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

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

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

Series

Manifold mounting

sub-base non "plug-in"	sub-base "plug-in"	
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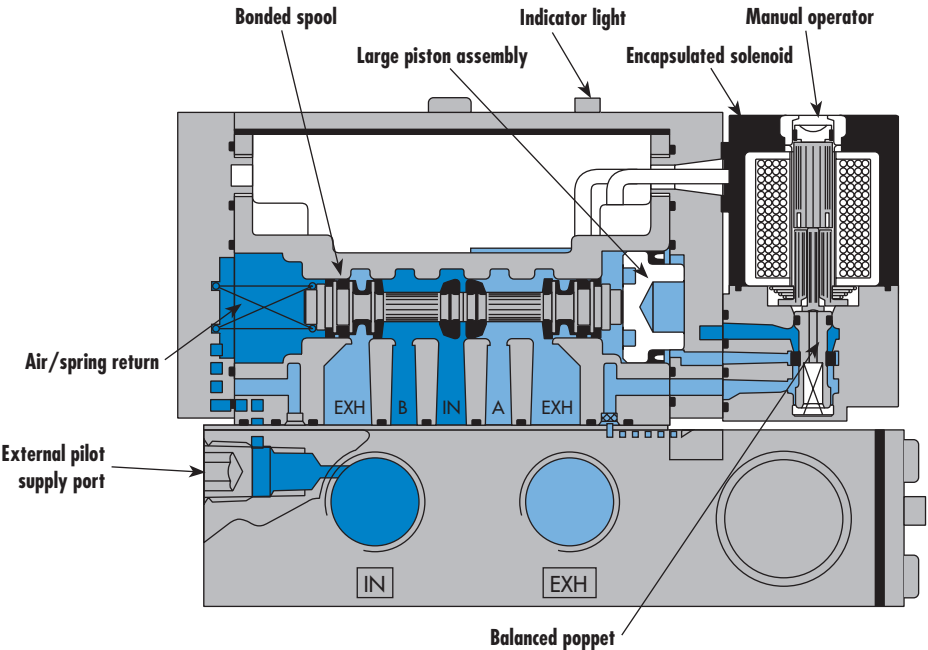
1300

800

ISO 1

ISO 2

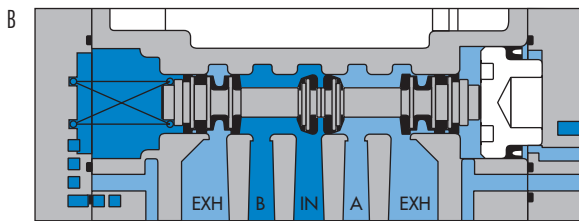
ISO 3



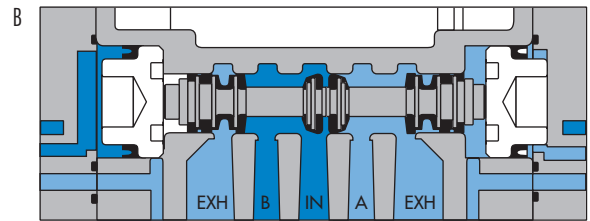
SERIES FEATURES

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

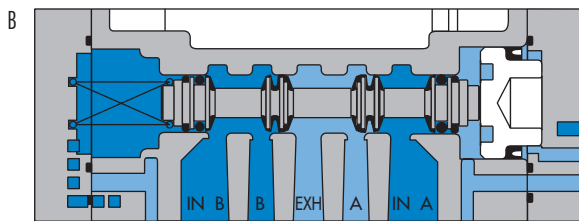
SPOOL CONFIGURATIONS



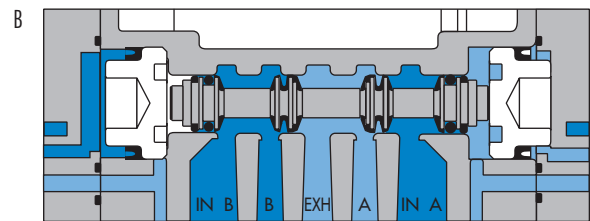
SINGLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



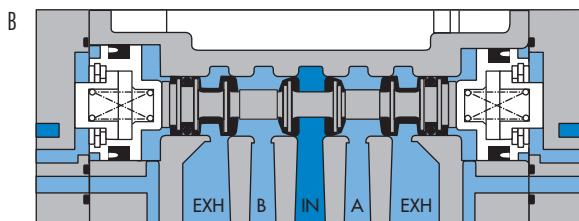
DOUBLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



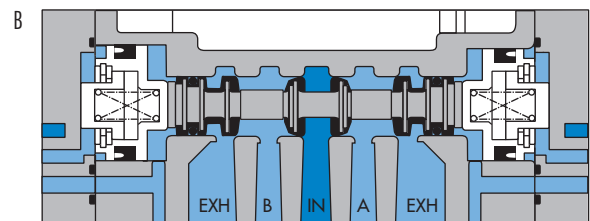
SINGLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



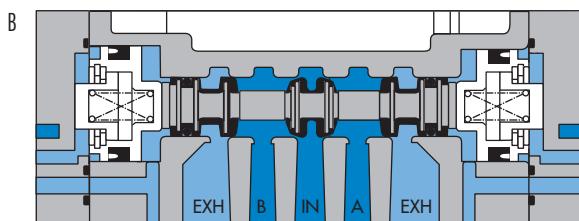
DOUBLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



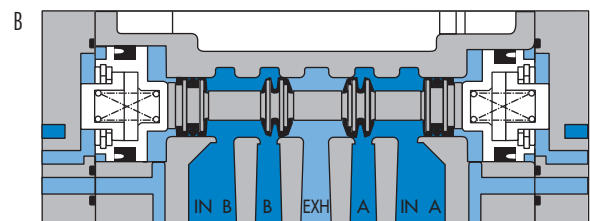
3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION SINGLE PRESSURE
PRESSURE CENTER

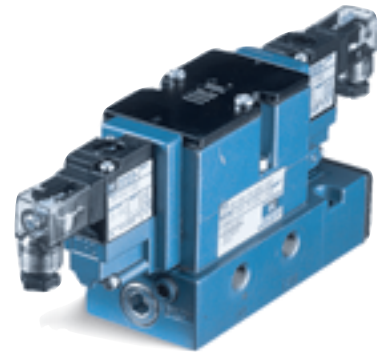


3 POSITION DUAL PRESSURE
PRESSURE CENTER

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/8" - G1/4" - G3/8"	1350 NI/min	sub-base non "plug-in"	

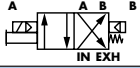
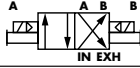
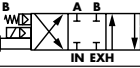
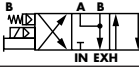
OPERATIONAL BENEFITS

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



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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 base		82A-AB-000-TM-Dxxx-xxx	82A-BB-000-TM-Dxxx-xxx	82A-EB-000-TM-Dxxx-xxx	82A-FB-000-TM-Dxxx-xxx	82A-GB-000-TM-Dxxx-xxx
sub-base	Internal	82A-AB-DAA-TM-Dxxx-xxx	82A-BB-DAA-TM-Dxxx-xxx	82A-EB-DAA-TM-Dxxx-xxx	82A-FB-DAA-TM-Dxxx-xxx	82A-GB-DAA-TM-Dxxx-xxx
G1/8"	External	82A-AB-DAD-TM-Dxxx-xxx	82A-BB-DAD-TM-Dxxx-xxx	82A-EB-DAD-TM-Dxxx-xxx	82A-FB-DAD-TM-Dxxx-xxx	82A-GB-DAD-TM-Dxxx-xxx
sub-base	Internal	82A-AB-EAA-TM-Dxxx-xxx	82A-BB-EAA-TM-Dxxx-xxx	82A-EB-EAA-TM-Dxxx-xxx	82A-FB-EAA-TM-Dxxx-xxx	82A-GB-EAA-TM-Dxxx-xxx
G1/4"	External	82A-AB-EAD-TM-Dxxx-xxx	82A-BB-EAD-TM-Dxxx-xxx	82A-EB-EAD-TM-Dxxx-xxx	82A-FB-EAD-TM-Dxxx-xxx	82A-GB-EAD-TM-Dxxx-xxx
sub-base	Internal	82A-AB-FAA-TM-Dxxx-xxx	82A-BB-FAA-TM-Dxxx-xxx	82A-EB-FAA-TM-Dxxx-xxx	82A-FB-FAA-TM-Dxxx-xxx	82A-GB-FAA-TM-Dxxx-xxx
G3/8"	External	82A-AB-FAD-TM-Dxxx-xxx	82A-BB-FAD-TM-Dxxx-xxx	82A-EB-FAD-TM-Dxxx-xxx	82A-FB-FAD-TM-Dxxx-xxx	82A-GB-FAD-TM-Dxxx-xxx

45
700
900

SOLENOID OPERATOR ►

D **XX X- X XX** *

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

Note : KD connector shown in photo.

* Other options available, see page 309.

OPTIONS

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

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

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

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

82A-XX-EAA-TM-Dxxx-xxx

- Replace A by B for bottom ports (G1/8" or G1/4" only)
- Replace A by C for side and bottom ports (G1/8" or G1/4" only)

82
6300
6500
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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 900 NI/min, G1/4" : 1300 NI/min, G3/8" : 1350 NI/min		
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 V=5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

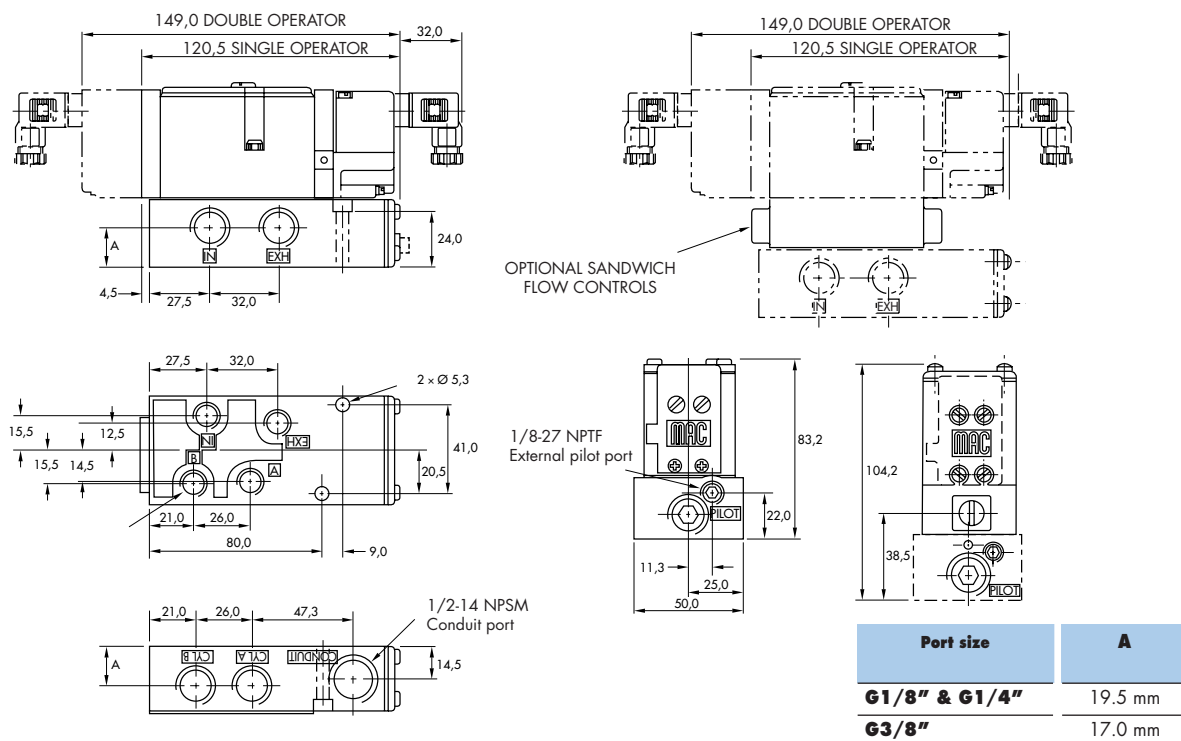
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- NPTF threads. • Flow controls (Part N°. FC82A-BA).

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/8" - G1/4" - G3/8"	1350 NI/min	sub-base "plug-in"	

OPERATIONAL BENEFITS

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



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6600

1300

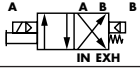
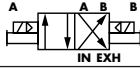
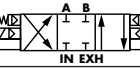
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		82A-AA-000-TM-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
sub-base	Internal	82A-AA-DAA-TM-DxxP-xDA	82A-BA-DAA-TM-DxxP-xDA	82A-EA-DAA-TM-DxxP-xDA	82A-FA-DAA-TM-DxxP-xDA	82A-GA-DAA-TM-DxxP-xDA
G1/8"	External	82A-AA-DAD-TM-DxxP-xDA	82A-BA-DAD-TM-DxxP-xDA	82A-EA-DAD-TM-DxxP-xDA	82A-FA-DAD-TM-DxxP-xDA	82A-GA-DAD-TM-DxxP-xDA
sub-base	Internal	82A-AA-EAA-TM-DxxP-xDA	82A-BA-EAA-TM-DxxP-xDA	82A-EA-EAA-TM-DxxP-xDA	82A-FA-EAA-TM-DxxP-xDA	82A-GA-EAA-TM-DxxP-xDA
G1/4"	External	82A-AA-EAD-TM-DxxP-xDA	82A-BA-EAD-TM-DxxP-xDA	82A-EA-EAD-TM-DxxP-xDA	82A-FA-EAD-TM-DxxP-xDA	82A-GA-EAD-TM-DxxP-xDA
sub-base	Internal	82A-AA-FAA-TM-DxxP-xDA	82A-BA-FAA-TM-DxxP-xDA	82A-EA-FAA-TM-DxxP-xDA	82A-FA-FAA-TM-DxxP-xDA	82A-GA-FAA-TM-DxxP-xDA
G3/8"	External	82A-AA-FAD-TM-DxxP-xDA	82A-BA-FAD-TM-DxxP-xDA	82A-EA-FAD-TM-DxxP-xDA	82A-FA-FAD-TM-DxxP-xDA	82A-GA-FAD-TM-DxxP-xDA

SOLENOID OPERATOR ►

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

XX	Voltage	X	Manual operator
AB	220V~/50Hz	1	Non-locking
AA	110V~/50Hz	2	Locking
AC	24V~/50Hz		
FB	24V=/1,8W		
DA	24V=/5,4W		
DF	24V=/12,7W		

* Other options available, see page 309.

OPTIONS

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

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

82A-AA-EAA-TM-DxxP-xDA

- Replace A by B for bottom ports (G1/8" or G1/4" only)
- Replace A by C for side and bottom ports (G1/8" or G1/4" only)

TECHNICAL DATA

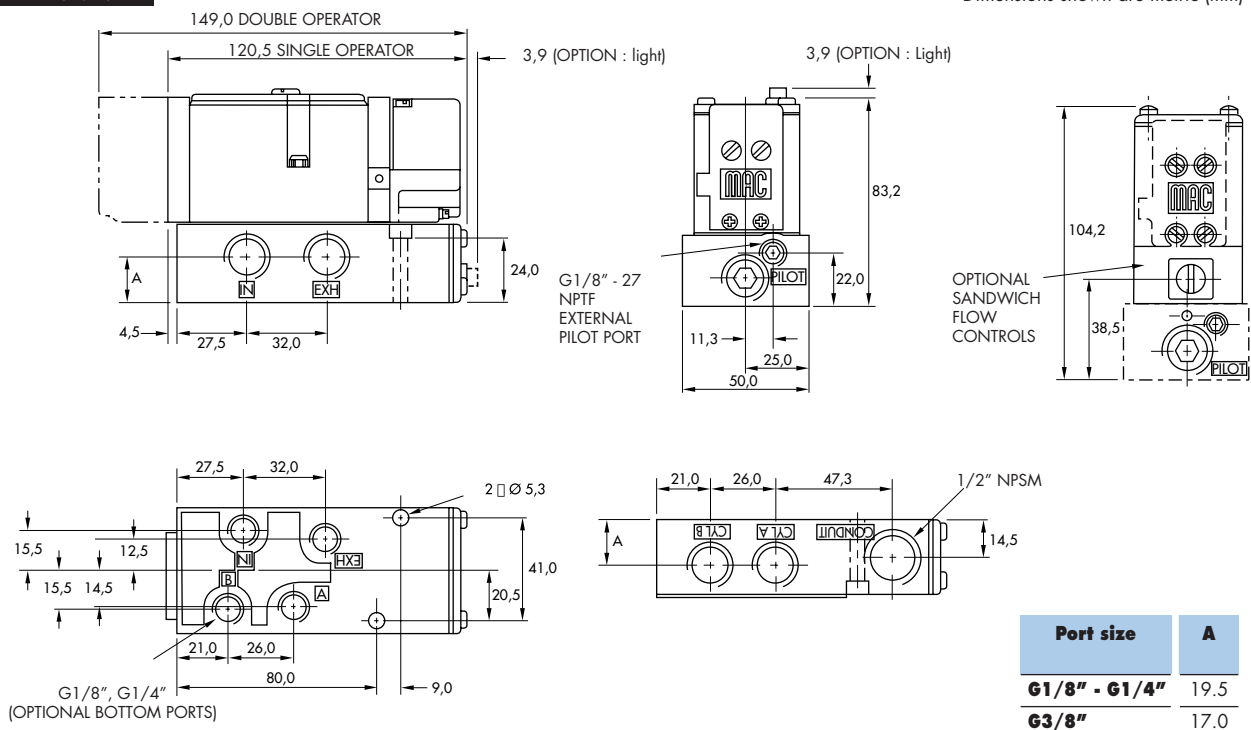
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 900 NI/min, G1/4" : 1300 NI/min, G3/8" : 1350 NI/min		
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 V=5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize : 6-13 ms

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

Options : • NPTF threads. • Flow controls (Part N°. FC82A-AA) • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G1/4" - G3/8"	1350 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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



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200

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1300

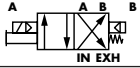
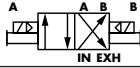
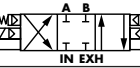
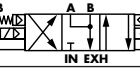
800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		82A-AB-000-TM-DXXX-XXX	82A-BB-000-TM-DXXX-XXX	82A-EB-000-TM-DXXX-XXX	82A-FB-000-TM-DXXX-XXX	82A-GB-000-TM-DXXX-XXX
sub-base	Internal	82A-AB-EKA-TM-DXXX-XXX	82A-BB-EKA-TM-DXXX-XXX	82A-EB-EKA-TM-DXXX-XXX	82A-FB-EKA-TM-DXXX-XXX	82A-GB-EKA-TM-DXXX-XXX
G1/4"	External	82A-AB-EKD-TM-DXXX-XXX	82A-BB-EKD-TM-DXXX-XXX	82A-EB-EKD-TM-DXXX-XXX	82A-FB-EKD-TM-DXXX-XXX	82A-GB-EKD-TM-DXXX-XXX
sub-base	Internal	82A-AB-FKA-TM-DXXX-XXX	82A-BB-FKA-TM-DXXX-XXX	82A-EB-FKA-TM-DXXX-XXX	82A-FB-FKA-TM-DXXX-XXX	82A-GB-FKA-TM-DXXX-XXX
G3/8"	External	82A-AB-FKD-TM-DXXX-XXX	82A-BB-FKD-TM-DXXX-XXX	82A-EB-FKD-TM-DXXX-XXX	82A-FB-FKD-TM-DXXX-XXX	82A-GB-FKD-TM-DXXX-XXX

SOLENOID OPERATOR ►

D **XX X - X XX***

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

* Other options available, see page 309.

Note : KD connector shown in photo.

OPTIONS

82A-AB-000-TM-DXXX-XXX

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

82A-XX-EKA-TM-DXXX-XXX

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1300 NL/min, G3/8" : 1350 NL/min		
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 V=5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

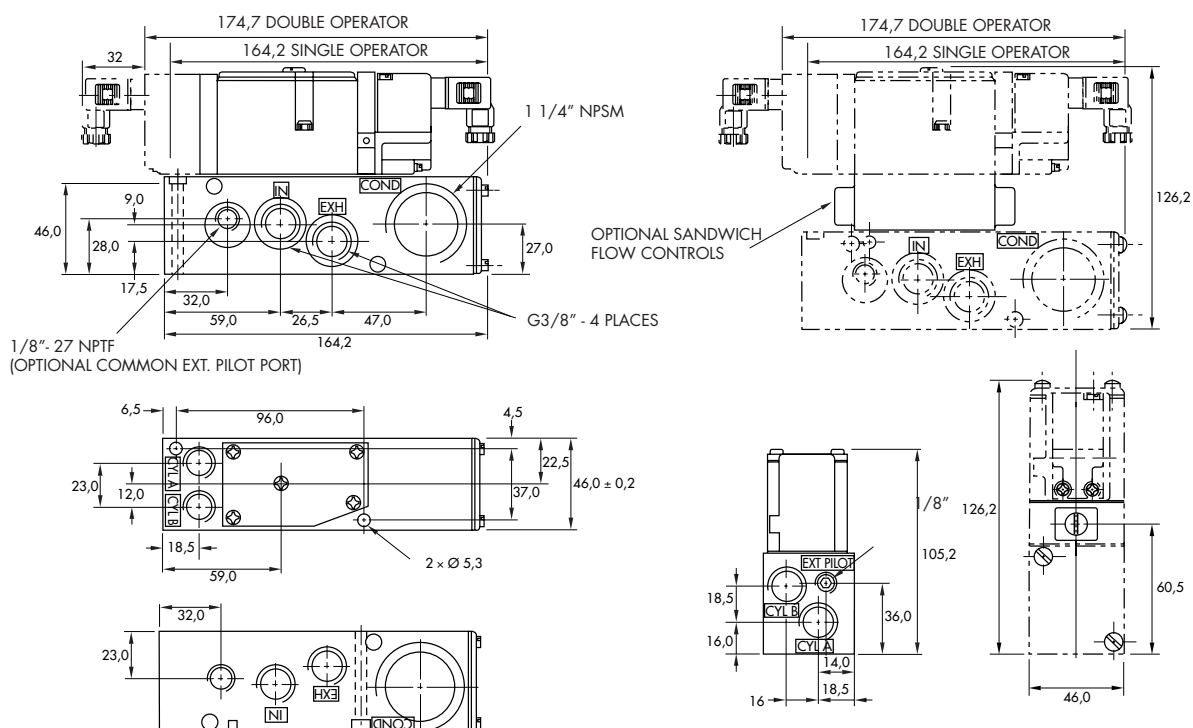
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- NPTF threads. • Flow controls (Part N°. FC82A-BA).

DIMENSIONS

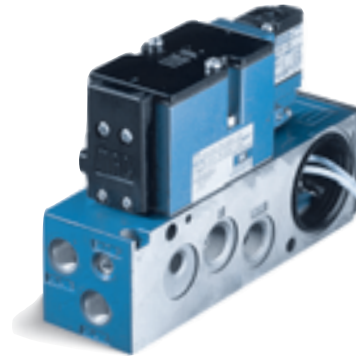
Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G1/4" - G3/8"	1350 NI/min	sub-base "plug-in"	

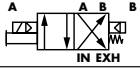
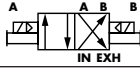
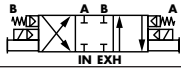
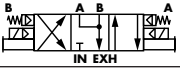
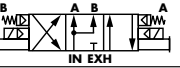
OPERATIONAL BENEFITS

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



35
100
200
55
56
57
58
59

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		82A-AA-000-TM-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
sub-base	Internal	82A-AA-EKA-TM-DxxP-xDA	82A-BA-EKA-TM-DxxP-xDA	82A-EA-EKA-TM-DxxP-xDA	82A-FA-EKA-TM-DxxP-xDA	82A-GA-EKA-TM-DxxP-xDA
G1/4"	External	82A-AA-EKD-TM-DxxP-xDA	82A-BA-EKD-TM-DxxP-xDA	82A-EA-EKD-TM-DxxP-xDA	82A-FA-EKD-TM-DxxP-xDA	82A-GA-EKD-TM-DxxP-xDA
sub-base	Internal	82A-AA-FKA-TM-DxxP-xDA	82A-BA-FKA-TM-DxxP-xDA	82A-EA-FKA-TM-DxxP-xDA	82A-FA-FKA-TM-DxxP-xDA	82A-GA-FKA-TM-DxxP-xDA
G3/8"	External	82A-AA-FKD-TM-DxxP-xDA	82A-BA-FKD-TM-DxxP-xDA	82A-EA-FKD-TM-DxxP-xDA	82A-FA-FKD-TM-DxxP-xDA	82A-GA-FKD-TM-DxxP-xDA

45
700

SOLENOID OPERATOR ►

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

XX	Voltage	X	Manual operator
AB	220V~/50Hz	1	Non-locking
AA	110V~/50Hz	2	Locking
AC	24V~/50Hz		
FB	24V~/1,8W		
DA	24V~/5,4W		
DF	24V~/12,7W		

900
82

* Other options available, see page 309.

OPTIONS

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

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

6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

82A-XX-EKA-TM-DxxP-xDA

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1300 NL/min, G3/8" : 1350 NL/min		
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 V= / 5.4 W Energize : 9 ms De-energize : 6 ms 50Hz/6 W Energize : 5-12 ms De-energize : 6-13 ms		

Spare parts :

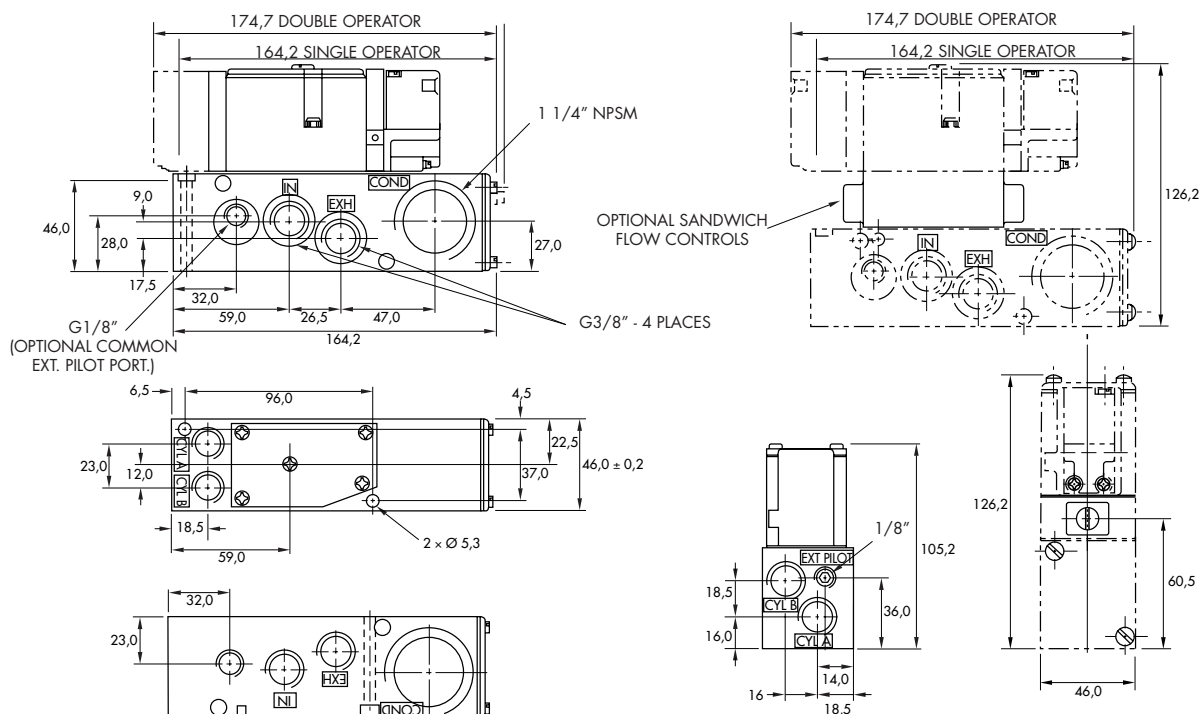
- Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXP-XDA, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- NPTF threads. • Flow controls (Part N° : FC82A-AA) • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



Direct solenoid and solenoid pilot operated valves

Individual mounting

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

Series

Manifold mounting

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

35

100

200

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6300

6500

6600

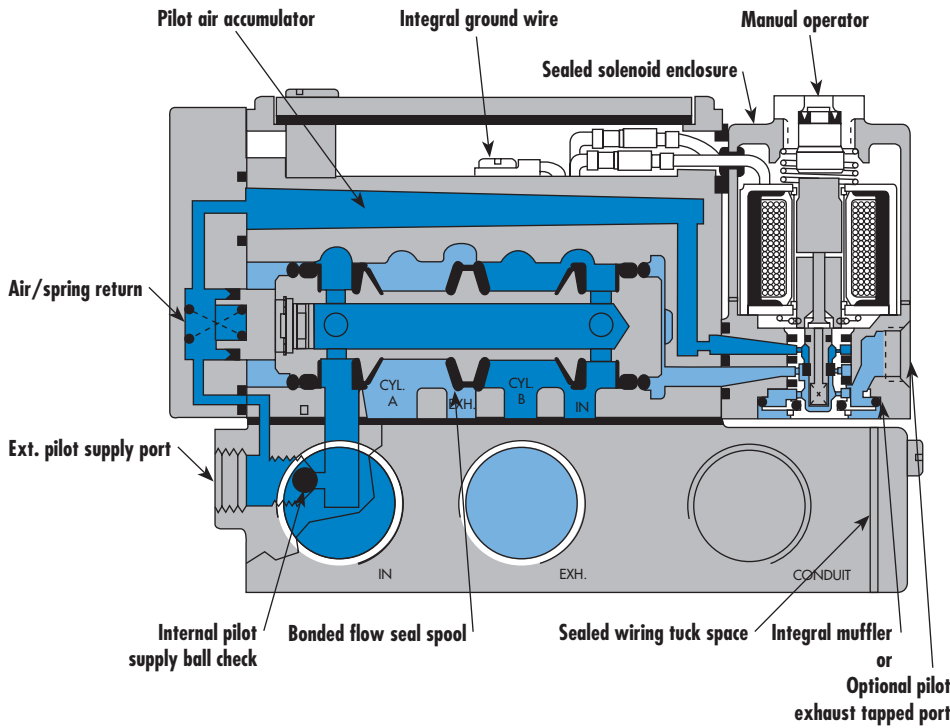
1300

800

ISO 1

ISO 2

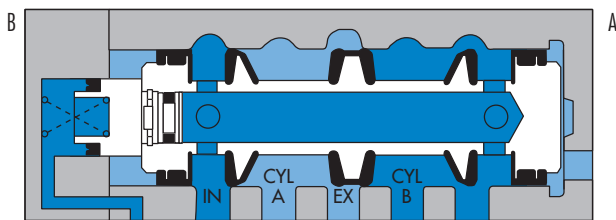
ISO 3



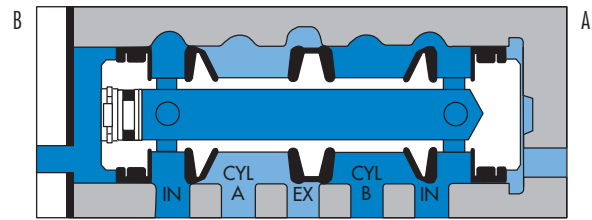
SERIES FEATURES

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

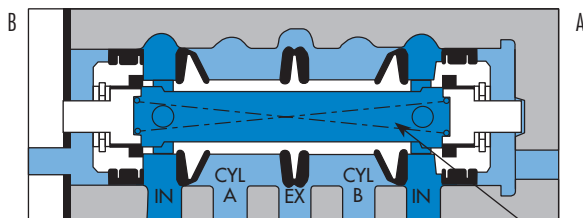
SPOOL CONFIGURATIONS



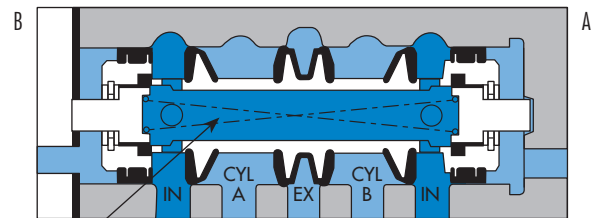
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN



3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure.
- Dual pressure on manifolds with sandwich regulators.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 1.7 bar main valve pressures, external pilot.
- Manual and mechanical operators available.
- All models available with sandwich regulators (Except remote air pilot).

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure.

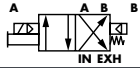
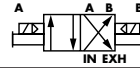
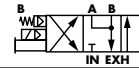
Pilot signal can be from 1.3 to 10 bar, regardless of main valve pressure.

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
Valve less base		6312D-000-PM- XXYYZZ	6322D-000-PM- XXYYZZ	6332D-000-PM- XXYYZZ	6342D-000-PM- XXYYZZ
sub-base	Internal	6312D-171-PM- XXYYZZ	6322D-171-PM- XXYYZZ	6332D-171-PM- XXYYZZ	6342D-171-PM- XXYYZZ
G1/4"	External	6312D-181-PM- XXYYZZ	6322D-181-PM- XXYYZZ	6332D-181-PM- XXYYZZ	6342D-181-PM- XXYYZZ
sub-base	Internal	6312D-271-PM- XXYYZZ	6322D-271-PM- XXYYZZ	6332D-271-PM- XXYYZZ	6342D-271-PM- XXYYZZ
G3/8"	External	6312D-281-PM- XXYYZZ	6322D-281-PM- XXYYZZ	6332D-281-PM- XXYYZZ	6342D-281-PM- XXYYZZ
sub-base	Internal	6312D-371-PM- XXYYZZ	6322D-371-PM- XXYYZZ	6332D-371-PM- XXYYZZ	6342D-371-PM- XXYYZZ
G1/2"	External	6312D-381-PM- XXYYZZ	6322D-381-PM- XXYYZZ	6332D-381-PM- XXYYZZ	6342D-381-PM- XXYYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ➤

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

* Other options available, see page 305.

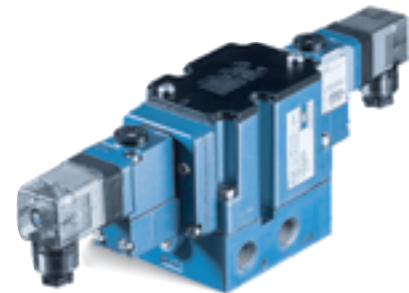
Note : Photo shown with JC connector.

OPTIONS

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

- For piped pilot exhaust replace M by P.
- For bottom cylinder ports (excluding G1/2"), replace by 4.
- For dual pressure valves (see page 293 for use with sandwich regulators), replace by 5.

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. To order bases without the valve, choose the base from the above table, then add 6300D as a prefix. Example 6300D-171.



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1300
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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2000 NI/min, G3/8" : 2600 NI/min, G1/2" : 3000 NI/min		
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 V= / 8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/ 6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

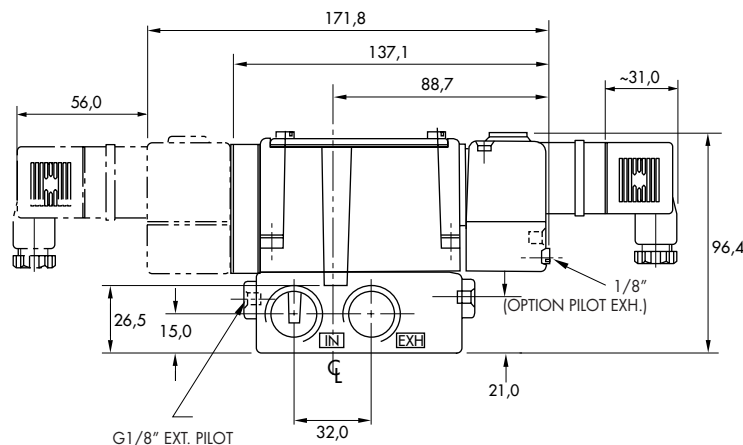
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

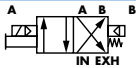
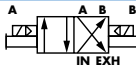
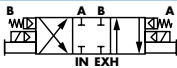


Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000 NI/min	sub-base "plug-in"	

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
					
Valve less base		6311D-000-PM- XXY DA	6321D-000-PM- XXY DA	6331D-000-PM- XXY DA	6341D-000-PM- XXY DA
sub-base	Internal	6311D-151-PM- XXY DA	6321D-151-PM- XXY DA	6331D-151-PM- XXY DA	6341D-151-PM- XXY DA
G1/4"	External	6311D-161-PM- XXY DA	6321D-161-PM- XXY DA	6331D-161-PM- XXY DA	6341D-161-PM- XXY DA
sub-base	Internal	6311D-251-PM- XXY DA	6321D-251-PM- XXY DA	6331D-251-PM- XXY DA	6341D-251-PM- XXY DA
G3/8"	External	6311D-261-PM- XXY DA	6321D-261-PM- XXY DA	6331D-261-PM- XXY DA	6341D-261-PM- XXY DA
sub-base	Internal	6311D-351-PM- XXY DA	6321D-351-PM- XXY DA	6331D-351-PM- XXY DA	6341D-351-PM- XXY DA
G1/2"	External	6311D-361-PM- XXY DA	6321D-361-PM- XXY DA	6331D-361-PM- XXY DA	6341D-361-PM- XXY DA

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

SOLENOID OPERATOR ➤

XX Y DA *

XX Voltage	Y Manual operator
11 110V~/50Hz	1 Non-locking
12 220V~/50Hz	2 Locking
22 24V~/50Hz	
59 24V=/2,5W	
87 24V=/17,1W	
61 24V=/8,5W	

* Other options available, see page 305.

OPTIONS

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

- For piped pilot exhaust replace M by P.
- For bottom ports (excluding G1/2"), replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For side ports with lights on base, replace by 2 (sgl. light), by 3 (dbl. light).
- For lights on valve body, replace by 3.
- For dual pressure valves with lights on valve body (see page 293 for use with sandwich regulators), replace by 6.

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

2. To order bases without the valve, choose the base from the above table, then add 6300D as a prefix. Example 6300D-151.



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1300

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ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2000 NI/min, G3/8" : 2600 NI/min, G1/2" : 3000 NI/min		
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 V= /8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

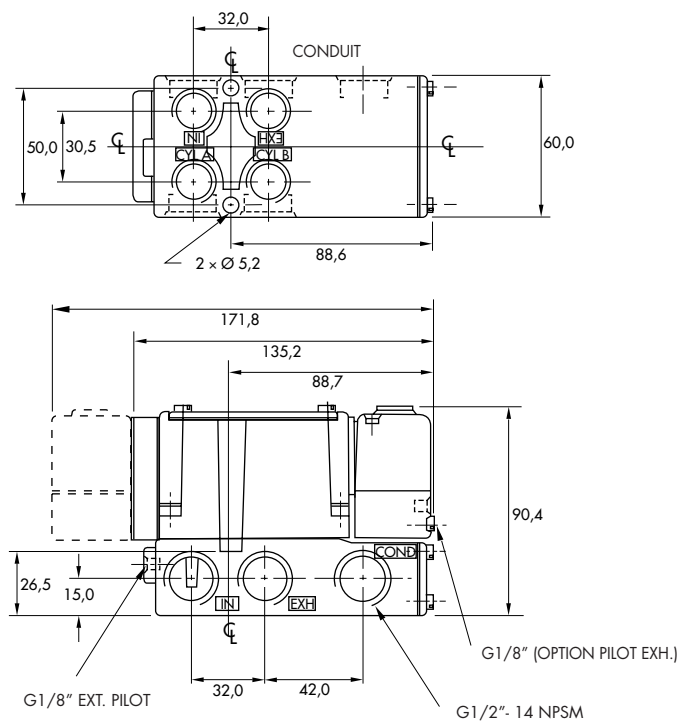
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

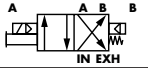
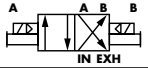
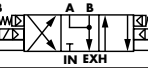


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/8" - G1/2"	3000 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6312D-000-PM-XXYYZZ	6322D-000-PM-XXYYZZ	6332D-000-PM-XXYYZZ	6342D-000-PM-XXYYZZ	6352D-000-PM-XXYYZZ
sub-base	Internal	6312D-571-PM-XXYYZZ	6322D-571-PM-XXYYZZ	6332D-571-PM-XXYYZZ	6342D-571-PM-XXYYZZ	6352D-571-PM-XXYYZZ
G3/8"	External	6312D-581-PM-XXYYZZ	6322D-581-PM-XXYYZZ	6332D-581-PM-XXYYZZ	6342D-581-PM-XXYYZZ	6352D-581-PM-XXYYZZ
sub-base	Internal	6312D-671-PM-XXYYZZ	6322D-671-PM-XXYYZZ	6332D-671-PM-XXYYZZ	6342D-671-PM-XXYYZZ	6352D-671-PM-XXYYZZ
G1/2"	External	6312D-681-PM-XXYYZZ	6322D-681-PM-XXYYZZ	6332D-681-PM-XXYYZZ	6342D-681-PM-XXYYZZ	6352D-681-PM-XXYYZZ

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ➤

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

* Other options available, see page 305.

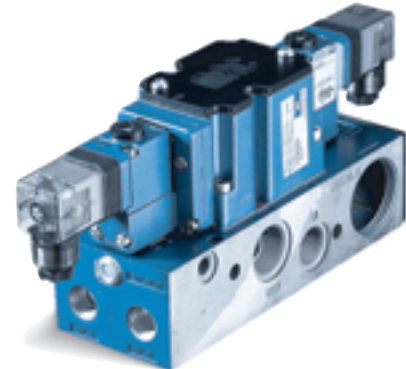
OPTIONS

6312D-XXX-PM-XXYYZZ

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

MODIFICATIONS - MOD 0210 Bottom inlet port in addition to side inlet port - **TO ORDER** : 6312D-571-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-671.
 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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6500
6600
1300
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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 2600 NL/min, G1/2" : 3000 NL/min		
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 V=8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

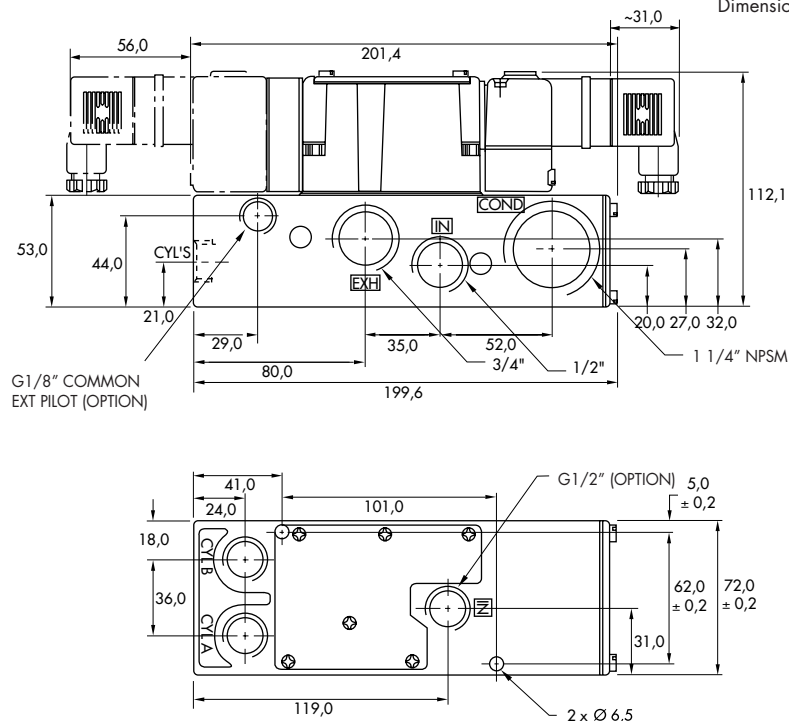
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

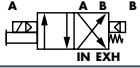
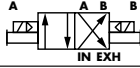
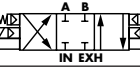


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/8" - G1/2"	3000 NI/min	sub-base "plug-in"	

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 base		6311D-000-PM- XXY DA	6321D-000-PM- XXY DA	6331D-000-PM- XXY DA	6341D-000-PM- XXY DA	6351D-000-PM- XXY DA
sub-base	Internal	6311D-551-PM- XXY DA	6321D-551-PM- XXY DA	6331D-551-PM- XXY DA	6341D-551-PM- XXY DA	6351D-551-PM- XXY DA
G3/8"	External	6311D-561-PM- XXY DA	6321D-561-PM- XXY DA	6331D-561-PM- XXY DA	6341D-561-PM- XXY DA	6351D-561-PM- XXY DA
sub-base	Internal	6311D-651-PM- XXY DA	6321D-651-PM- XXY DA	6331D-651-PM- XXY DA	6341D-651-PM- XXY DA	6351D-651-PM- XXY DA
G1/2"	External	6311D-661-PM- XXY DA	6321D-661-PM- XXY DA	6331D-661-PM- XXY DA	6341D-661-PM- XXY DA	6351D-661-PM- XXY DA

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

SOLENOID OPERATOR ➤

XX Y DA *

XX Voltage	Y Manual operator
11 110V~/50Hz	1 Non-locking
12 220V~/50Hz	2 Locking
22 24V~/50Hz	
87 24V~/17,1W	
59 24V~/2,5W	
61 24V~/8,5W	

* Other options available, see page 305.

OPTIONS

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

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

MODIFICATIONS - MOD 0210 Bottom inlet port in addition to side inlet port - **TO ORDER** : 6311D-551-PM-111DA **MOD 0210**

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
 2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-551.
 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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900

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6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 2600 NI/min, G1/2" : 3000 NI/min		
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 V=8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

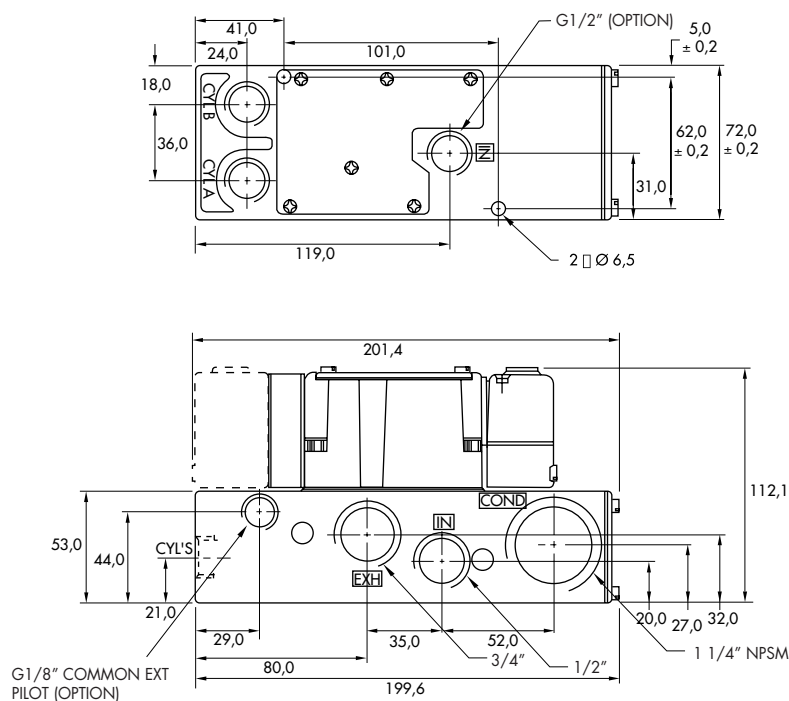
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Direct solenoid and solenoid pilot operated valves

Individual mounting

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

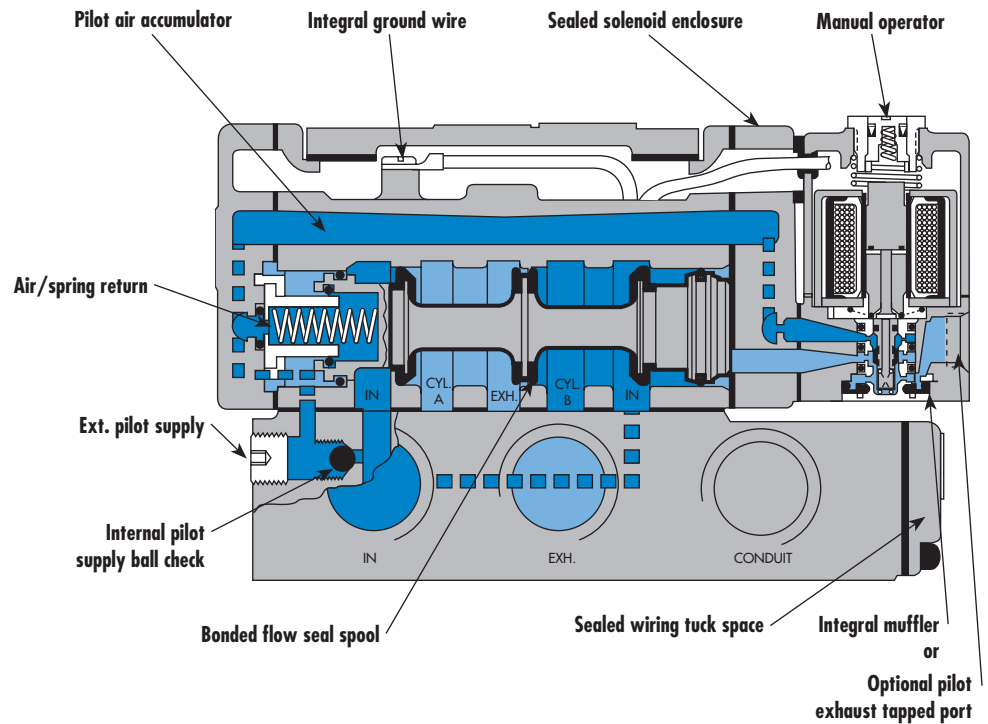
Series

Manifold mounting

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

35

100



200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

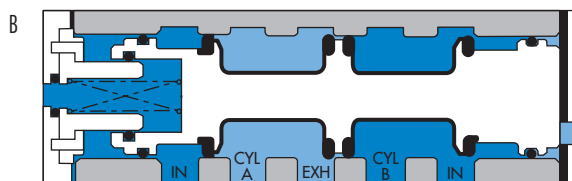
ISO 2

ISO 3

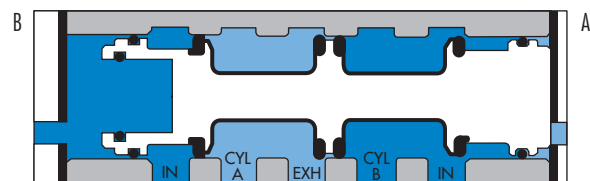
SERIES FEATURES

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

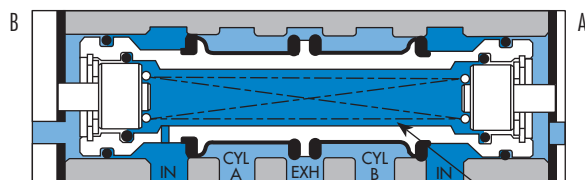
SPOOL CONFIGURATIONS



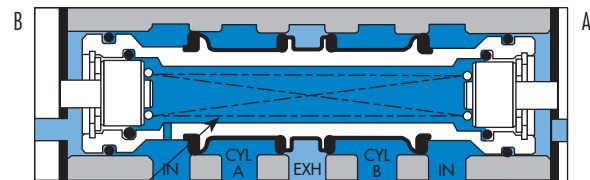
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN

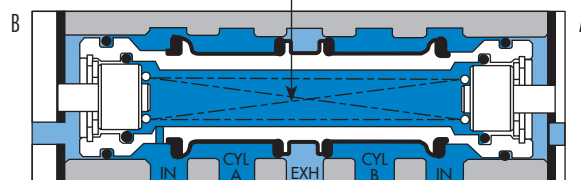


3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING



3 POS. PRESSURE CENTER
CENTER POSITION SHOWN

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 1.7 bar main valve pressures, external pilot.
- Manual and mechanical operators available.

REMOTE AIR PILOT OPERATED VALVES

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 1.3 to 10 bar, regardless of main valve pressure.

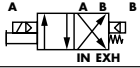
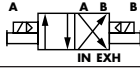
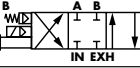
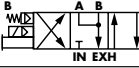
ALL MODELS AVAILABLE WITH SANDWICH TYPE REGULATORS

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6512B-000-PM- XXYYZZ	6522B-000-PM- XXYYZZ	6532B-000-PM- XXYYZZ	6542B-000-PM- XXYYZZ	6552B-000-PM- XXYYZZ
sub-base	Internal	6512B-171-PM- XXYYZZ	6522B-171-PM- XXYYZZ	6532B-171-PM- XXYYZZ	6542B-171-PM- XXYYZZ	6552B-171-PM- XXYYZZ
G3/8"	External	6512B-181-PM- XXYYZZ	6522B-181-PM- XXYYZZ	6532B-181-PM- XXYYZZ	6542B-181-PM- XXYYZZ	6552B-181-PM- XXYYZZ
sub-base	Internal	6512B-271-PM- XXYYZZ	6522B-271-PM- XXYYZZ	6532B-271-PM- XXYYZZ	6542B-271-PM- XXYYZZ	6552B-271-PM- XXYYZZ
G1/2"	External	6512B-281-PM- XXYYZZ	6522B-281-PM- XXYYZZ	6532B-281-PM- XXYYZZ	6542B-281-PM- XXYYZZ	6552B-281-PM- XXYYZZ
sub-base	Internal	6512B-371-PM- XXYYZZ	6522B-371-PM- XXYYZZ	6532B-371-PM- XXYYZZ	6542B-371-PM- XXYYZZ	6552B-371-PM- XXYYZZ
G3/4"	External	6512B-381-PM- XXYYZZ	6522B-381-PM- XXYYZZ	6532B-381-PM- XXYYZZ	6542B-381-PM- XXYYZZ	6552B-381-PM- XXYYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

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

* Other options available, see page 305.

OPTIONS

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

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

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exh. & cyl. ports (no side ports)	Available on individual base G3/8" & G1/2" only
0004	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base G3/8" only

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
 2. Bottom ports : Refer to modification table.
 3. To order bases without the valve, choose the base from the above table, then add 6500B as a prefix. Example 6500B-171.



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700
900
82
6300
6500
6600
1300
800
ISO 1
ISO 2
ISO 3

TECHNICAL DATA

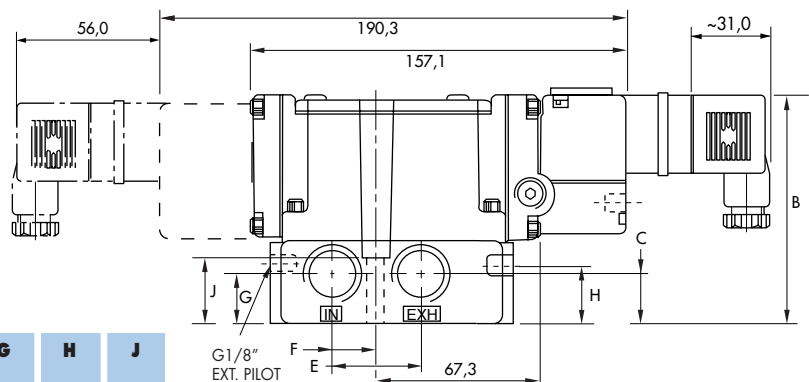
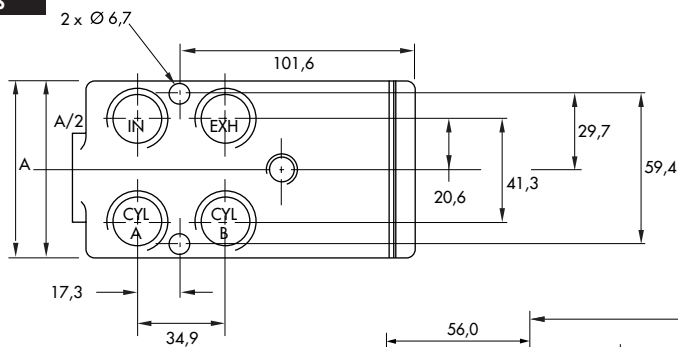
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min		
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 V= / 8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	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 : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



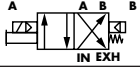
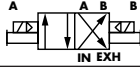
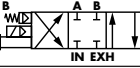
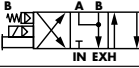
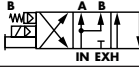
Port size	A	B	C	E	F	G	H	J
G3/8" - G1/2"	69.6	97.4	18.3	36.0	17.9	19.0	23.6	25.4
G3/4"	94.5	109.3	17.3	40.1	19.2	20.8	35.9	36.6

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	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 base		6511B-000-PM- XXY DA	6521B-000-PM- XXY DA	6531B-000-PM- XXY DA	6541B-000-PM- XXY DA	6551B-000-PM- XXY DA
sub-base	Internal	6511B-151-PM- XXY DA	6521B-151-PM- XXY DA	6531B-151-PM- XXY DA	6541B-151-PM- XXY DA	6551B-151-PM- XXY DA
G3/8"	External	6511B-161-PM- XXY DA	6521B-161-PM- XXY DA	6531B-161-PM- XXY DA	6541B-161-PM- XXY DA	6551B-161-PM- XXY DA
sub-base	Internal	6511B-251-PM- XXY DA	6521B-251-PM- XXY DA	6531B-251-PM- XXY DA	6541B-251-PM- XXY DA	6551B-251-PM- XXY DA
G1/2"	External	6511B-261-PM- XXY DA	6521B-261-PM- XXY DA	6531B-261-PM- XXY DA	6541B-261-PM- XXY DA	6551B-261-PM- XXY DA
sub-base	Internal	6511B-351-PM- XXY DA	6521B-351-PM- XXY DA	6531B-351-PM- XXY DA	6541B-351-PM- XXY DA	6551B-351-PM- XXY DA
G3/4"	External	6511B-361-PM- XXY DA	6521B-361-PM- XXY DA	6531B-361-PM- XXY DA	6541B-361-PM- XXY DA	6551B-361-PM- XXY DA

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

SOLENOID OPERATOR ➤

XX	Voltage	Y	Manual operator
11	110V~/50Hz	1	Non-locking
12	220V~/50Hz	2	Locking
22	24V~/50Hz		
59	24V=/2,5W		
87	24V=/17,1W		
61	24V=/8,5W		

* Other options available, see page 305.

OPTIONS

6511B-XXX-PM- XXY DA	- For piped pilot exhaust replace M by P. - For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light). - For lights on base, replace by 2 (sgl. light), by 3 (dbl. light). - For lights on valve body, replace by 3.
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MODIFICATIONS		
MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exh. & cyl. ports (no side ports)	Available on individual base G3/8" & G1/2" only
0004	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base G3/8" only

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. Bottom ports : Refer to modification table.
3. To order bases without the valve, choose the base from the above table, then add 6500B as a prefix. Example 6500B-151.



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min		
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 V=8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

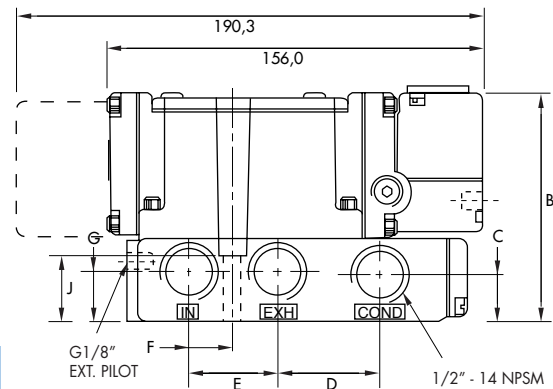
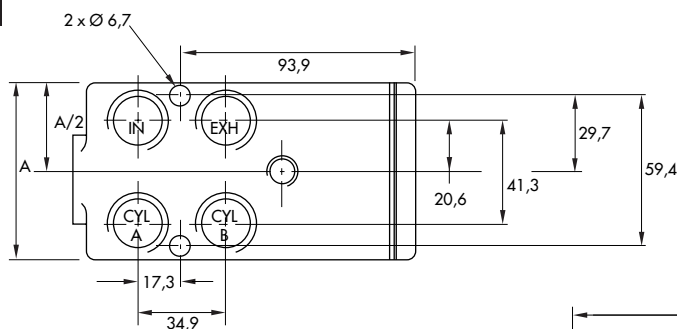
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



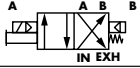
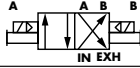
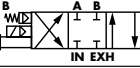
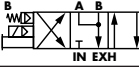
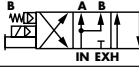
Port size	A	B	C	D	E	F	G	H	J
G3/8" - G1/2"	69.6	97.4	18.3	40.6	36.0	17.9	19.0	23.6	25.4
G3/4"	94.5	109.3	17.3	46.7	40.1	19.2	20.8	35.9	36.6

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6512B-000-PM-XXYYZZ	6522B-000-PM-XXYYZZ	6532B-000-PM-XXYYZZ	6542B-000-PM-XXYYZZ	6552B-000-PM-XXYYZZ
sub-base	Internal	6512B-471-PM-XXYYZZ	6522B-471-PM-XXYYZZ	6532B-471-PM-XXYYZZ	6542B-471-PM-XXYYZZ	6552B-471-PM-XXYYZZ
G3/8"	External	6512B-481-PM-XXYYZZ	6522B-481-PM-XXYYZZ	6532B-481-PM-XXYYZZ	6542B-481-PM-XXYYZZ	6552B-481-PM-XXYYZZ
sub-base	Internal	6512B-571-PM-XXYYZZ	6522B-571-PM-XXYYZZ	6532B-571-PM-XXYYZZ	6542B-571-PM-XXYYZZ	6552B-571-PM-XXYYZZ
G1/2"	External	6512B-581-PM-XXYYZZ	6522B-581-PM-XXYYZZ	6532B-581-PM-XXYYZZ	6542B-581-PM-XXYYZZ	6552B-581-PM-XXYYZZ
sub-base	Internal	6512B-671-PM-XXYYZZ	6522B-671-PM-XXYYZZ	6532B-671-PM-XXYYZZ	6542B-671-PM-XXYYZZ	6552B-671-PM-XXYYZZ
G3/4"	External	6512B-681-PM-XXYYZZ	6522B-681-PM-XXYYZZ	6532B-681-PM-XXYYZZ	6542B-681-PM-XXYYZZ	6552B-681-PM-XXYYZZ

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ►

XX Y ZZ *

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

* Other options available, see page 305.

OPTIONS

6512B-XXX-PM-XXYYZZ

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

MODIFICATIONS		
MOD. N°	DESCRIPTION	MODEL AVAILABILITY
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.
 2. Bottom ports : Refer to modification table.
 3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-471.



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100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min		
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 V=8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

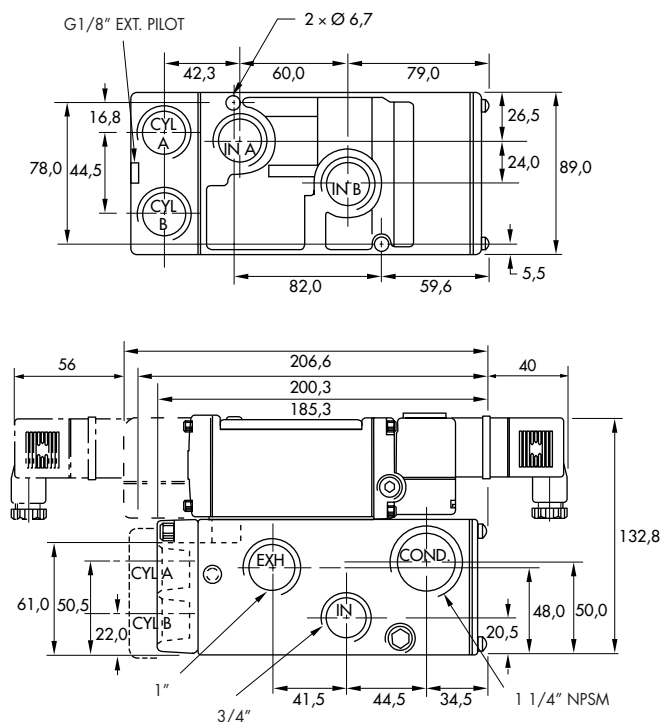
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

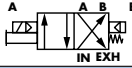
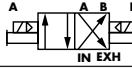
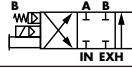
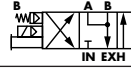


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	sub-base "plug-in"	

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 base		6511B-000-PM-XXYDA	6521B-000-PM-XXYDA	6531B-000-PM-XXYDA	6541B-000-PM-XXYDA	6551B-000-PM-XXYDA
sub-base	Internal	6511B-451-PM-XXYDA	6521B-451-PM-XXYDA	6531B-451-PM-XXYDA	6541B-451-PM-XXYDA	6551B-451-PM-XXYDA
G3/8"	External	6511B-461-PM-XXYDA	6521B-461-PM-XXYDA	6531B-461-PM-XXYDA	6541B-461-PM-XXYDA	6551B-461-PM-XXYDA
sub-base	Internal	6511B-551-PM-XXYDA	6521B-551-PM-XXYDA	6531B-551-PM-XXYDA	6541B-551-PM-XXYDA	6551B-551-PM-XXYDA
G1/2"	External	6511B-561-PM-XXYDA	6521B-561-PM-XXYDA	6531B-561-PM-XXYDA	6541B-561-PM-XXYDA	6551B-561-PM-XXYDA
sub-base	Internal	6511B-651-PM-XXYDA	6521B-651-PM-XXYDA	6531B-651-PM-XXYDA	6541B-651-PM-XXYDA	6551B-651-PM-XXYDA
G3/4"	External	6511B-661-PM-XXYDA	6521B-661-PM-XXYDA	6531B-661-PM-XXYDA	6541B-661-PM-XXYDA	6551B-661-PM-XXYDA

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

SOLENOID OPERATOR ➤

XX Y DA *

XX	Voltage	Y	Manual operator
11	110V~/50Hz	1	Non-locking
12	220V~/50Hz	2	Locking
22	24V~/50Hz		
59	24V=/2,5W		
87	24V=/17,1W		
61	24V=/8,5W		

* Other options available, see page 305.

OPTIONS

6511B-XXX-PM-XXYDA	- For piped pilot exhaust replace M by P.	- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
	- For lights on valve body, replace by 3.	- For lights on manifold, replace by 2 (sgl. light), by 3 (dbl. light).

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.
2. Bottom ports : Refer to modification table.
3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-451.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min		
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 V= /8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

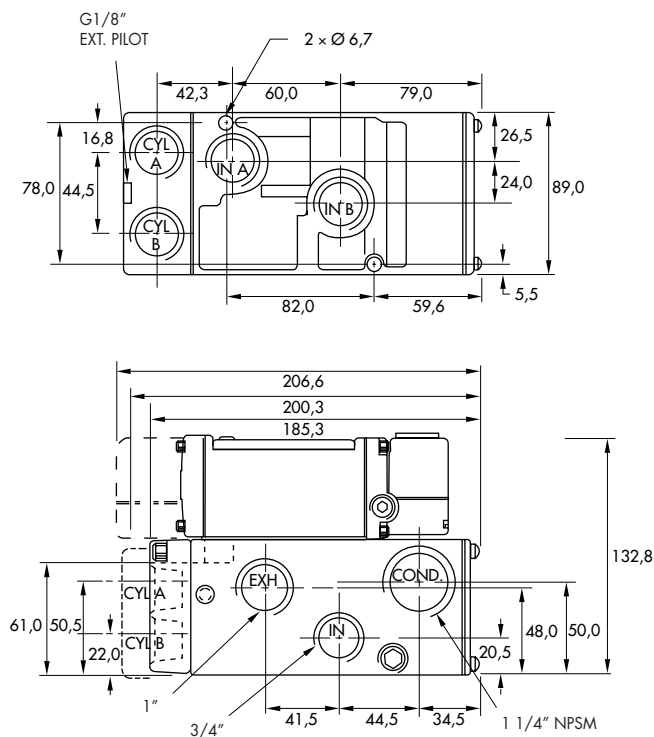
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Direct solenoid and solenoid pilot operated valves

Individual mounting

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

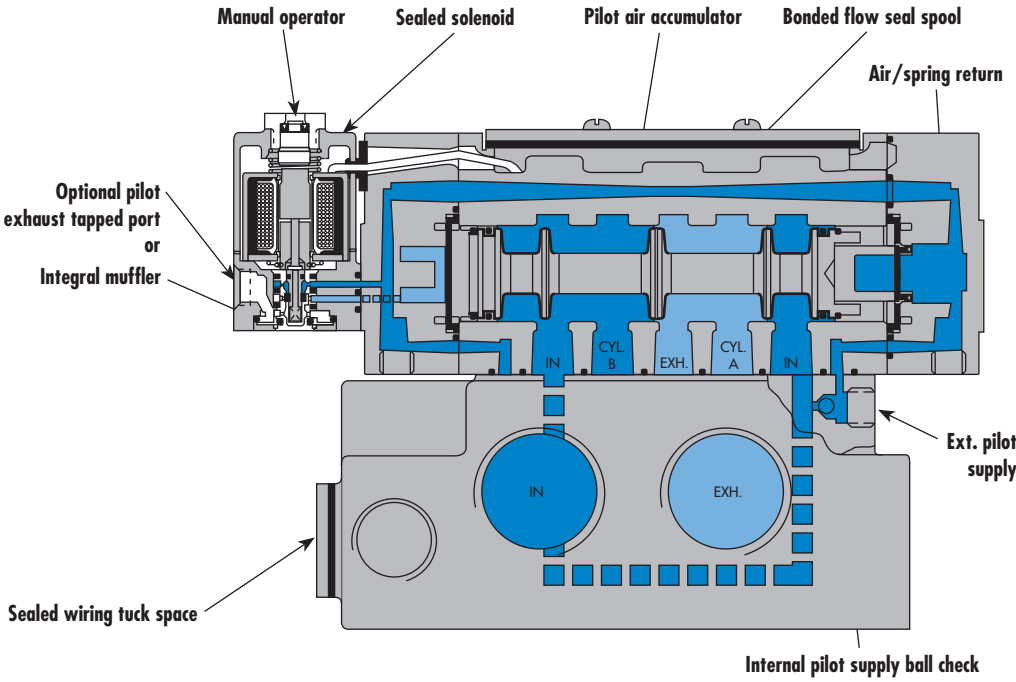
Series

Manifold mounting

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

35

100



200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

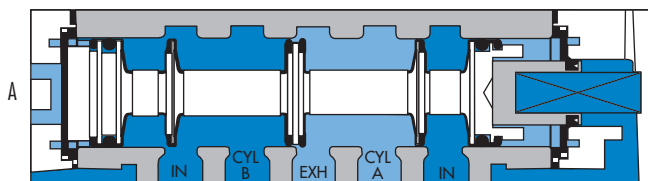
ISO 2

ISO 3

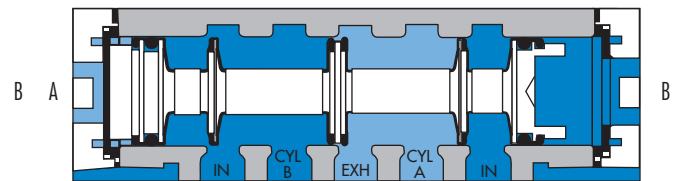
SERIES FEATURES

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

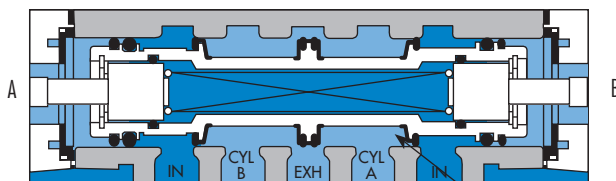
SPOOL CONFIGURATIONS



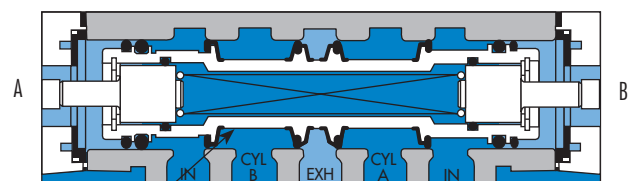
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



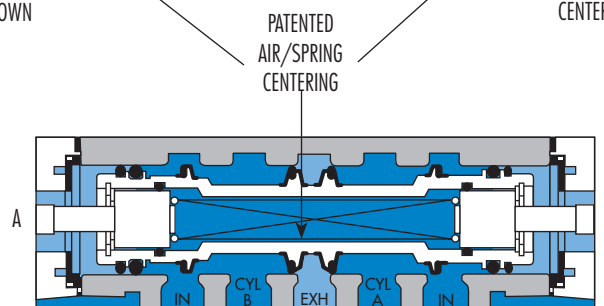
2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN



3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN



3 POS. PRESSURE CENTER
CENTER POSITION SHOWN

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base.
- Internal pilot or for Vacuum to 1.7 bar main valve pressures, external pilot.
- Manual and mechanical operators available.

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 1.3 to 10 bar, regardless of main valve pressure.

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/4" - G1"	9600 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
Valve less base		6612A-000-PM- XXYYZZ	6622A-000-PM- XXYYZZ	6632A-000-PM- XXYYZZ	6642A-000-PM- XXYYZZ	6652A-000-PM- XXYYZZ
sub-base	Internal	6612A-271-PM- XXYYZZ	6622A-271-PM- XXYYZZ	6632A-271-PM- XXYYZZ	6642A-271-PM- XXYYZZ	6652A-271-PM- XXYYZZ
G3/4"	External	6612A-281-PM- XXYYZZ	6622A-281-PM- XXYYZZ	6632A-281-PM- XXYYZZ	6642A-281-PM- XXYYZZ	6652A-281-PM- XXYYZZ
sub-base	Internal	6612A-371-PM- XXYYZZ	6622A-371-PM- XXYYZZ	6632A-371-PM- XXYYZZ	6642A-371-PM- XXYYZZ	6652A-371-PM- XXYYZZ
G1"	External	6612A-381-PM- XXYYZZ	6622A-381-PM- XXYYZZ	6632A-381-PM- XXYYZZ	6642A-381-PM- XXYYZZ	6652A-381-PM- XXYYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

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

* Other options available, see page 305.

OPTIONS

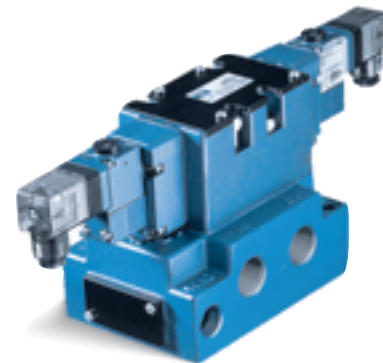
6612A-XXX-PM-**XXYYZZ**

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

MODIFICATIONS		
MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exh. & cyl ports (side ports plugged)	G3/4" individual base
0004	Full side porting and additional. Bottom inlet, exh. & cyl ports	G3/4" individual base
0112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	G3/4" individual base

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

EXAMPLE : 6612A-271-PM-111JA **MOD 0002**



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

- Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. Bottom ports : Refer to modification table.
3. To order bases without the valve, choose the base from the above table, then add 6600A as a prefix. Example 6600A-271.
4. 2 position and 3 position valve bodies are not interchangeable.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min		
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 V=8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

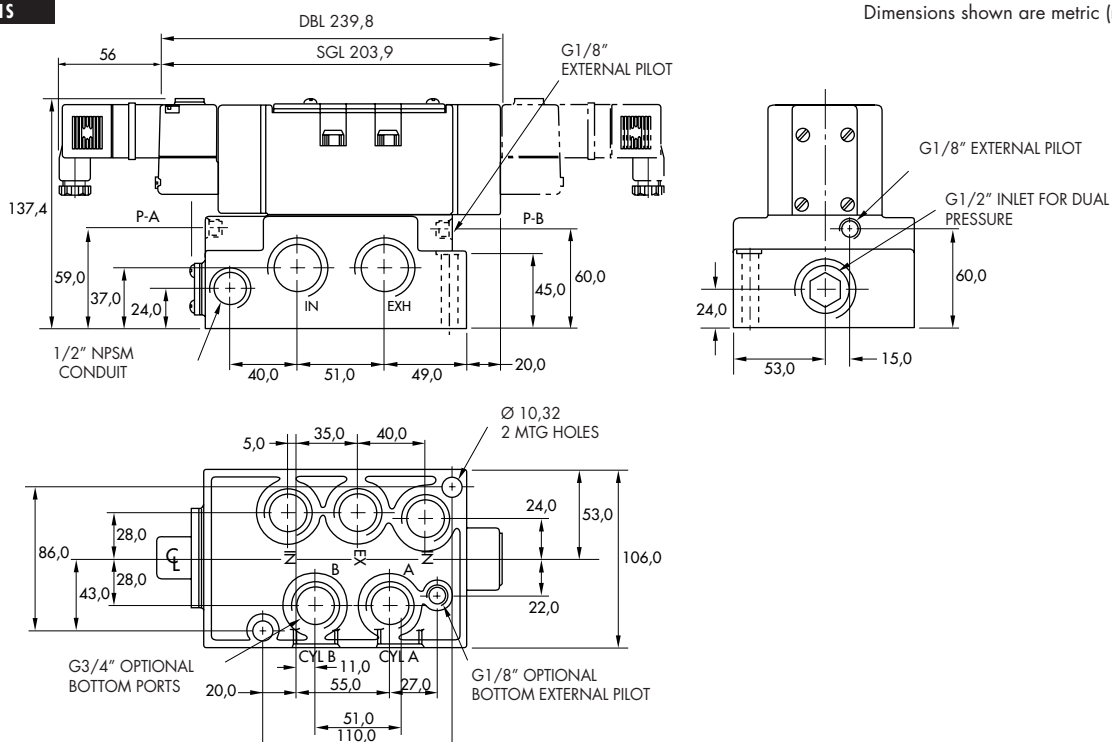
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

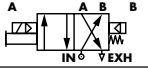
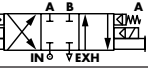
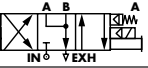
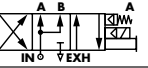


Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/4" - G1"	9600 NI/min	sub-base "plug-in"	

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 base		6611A-000-PM-XXYDA	6621A-000-PM-XXYDA	6631A-000-PM-XXYDA	6641A-000-PM-XXYDA	6651A-000-PM-XXYDA
sub-base	Internal	6611A-251-PM-XXYDA	6621A-251-PM-XXYDA	6631A-251-PM-XXYDA	6641A-251-PM-XXYDA	6651A-251-PM-XXYDA
G3/4"	External	6611A-261-PM-XXYDA	6621A-261-PM-XXYDA	6631A-261-PM-XXYDA	6641A-261-PM-XXYDA	6651A-261-PM-XXYDA
sub-base	Internal	6611A-351-PM-XXYDA	6621A-351-PM-XXYDA	6631A-351-PM-XXYDA	6641A-351-PM-XXYDA	6651A-351-PM-XXYDA
G1"	External	6611A-361-PM-XXYDA	6621A-361-PM-XXYDA	6631A-361-PM-XXYDA	6641A-361-PM-XXYDA	6651A-361-PM-XXYDA

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

SOLENOID OPERATOR ➤

XX	Voltage	Y	Manual operator
11	110V~/50Hz	1	Non-locking
12	220V~/50Hz	2	Locking
22	24V~/50Hz		
59	24V=/2,5W		
87	24V=/17,1W		
61	24V=/8,5W		

* Other options available, see page 305.

OPTIONS

6611A-XXX-PM-XXYDA

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

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0002	Bottom inlet, exh. & cyl ports (side ports plugged)	G3/4" individual base
0004	Full side porting and additional bottom inlet, exh. & cyl ports	G3/4" individual base
0112	Side inlet & exhaust with bottom cyl. ports (side cyl. ports plugged)	G3/4" individual base

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

EXAMPLE : 6611A-251-PM-111DA **MOD 0002**

- Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. Bottom ports : Refer to modification table.
3. To order bases without the valve, choose the base from the above table, then add 6600A as a prefix. Example 6600A-251.
4. 2 position and 3 position valve bodies are not interchangeable.



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min		
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 V=8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

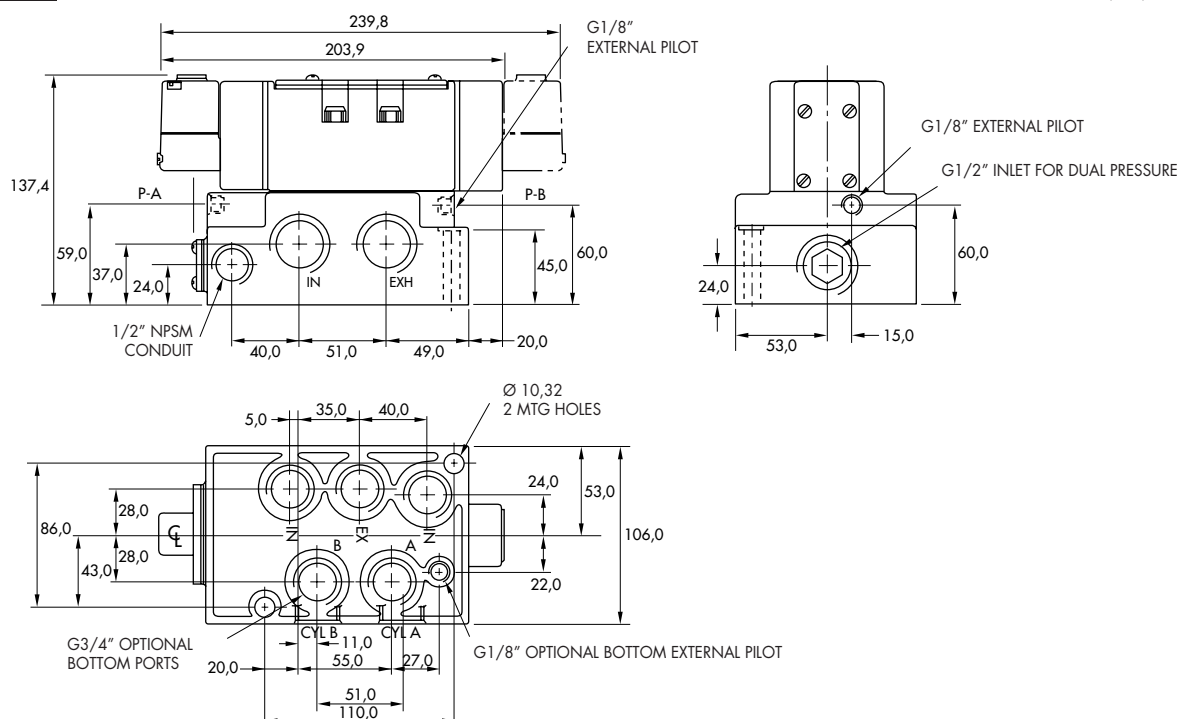
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

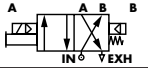
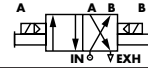
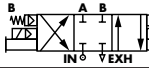
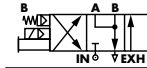
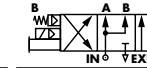


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/4" - G1" - G1 1/4"	9600 NI/min	sub-base non "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6612A-000-PM-XXYYZZ	6622A-000-PM-XXYYZZ	6632A-000-PM-XXYYZZ	6642A-000-PM-XXYYZZ	6652A-000-PM-XXYYZZ
sub-base	Internal	6612A-471-PM-XXYYZZ	6622A-471-PM-XXYYZZ	6632A-471-PM-XXYYZZ	6642A-471-PM-XXYYZZ	6652A-471-PM-XXYYZZ
G3/4"	External	6612A-481-PM-XXYYZZ	6622A-481-PM-XXYYZZ	6632A-481-PM-XXYYZZ	6642A-481-PM-XXYYZZ	6652A-481-PM-XXYYZZ
sub-base	Internal	6612A-571-PM-XXYYZZ	6622A-571-PM-XXYYZZ	6632A-571-PM-XXYYZZ	6642A-571-PM-XXYYZZ	6652A-571-PM-XXYYZZ
G1"	External	6612A-581-PM-XXYYZZ	6622A-581-PM-XXYYZZ	6632A-581-PM-XXYYZZ	6642A-581-PM-XXYYZZ	6652A-581-PM-XXYYZZ
sub-base	Internal	6612A-671-PM-XXYYZZ	6622A-671-PM-XXYYZZ	6632A-671-PM-XXYYZZ	6642A-671-PM-XXYYZZ	6652A-671-PM-XXYYZZ
G1 1/4"	External	6612A-681-PM-XXYYZZ	6622A-681-PM-XXYYZZ	6632A-681-PM-XXYYZZ	6642A-681-PM-XXYYZZ	6652A-681-PM-XXYYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

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

* Other options available, see page 305.

OPTIONS

6612A-XXX-PM-XXYYDA

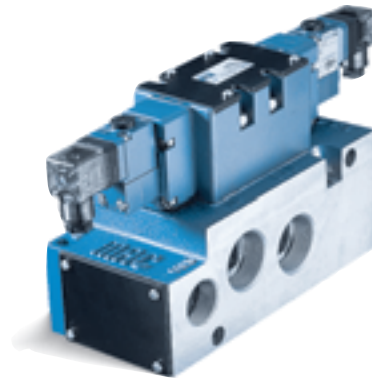
- For piped pilot exhaust replace M by P.
- For dual pressure valve, replace by 4.

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0210	G1 1/4" Bottom inlet	Manifold base
0364	G1 1/4" Bottom inlet, G3/4" or G1" Bottom cyl.	Manifold base
0112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	G1" Manifold base

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

EXAMPLE : 6612A-471-PM-111JA **MOD 0364**



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

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

2. Bottom ports : Refer to modification table.

3. To order manifolds without the valve, choose the manifold from the above table, then add 6600A as a prefix. Example 6600A-471.

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

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



100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

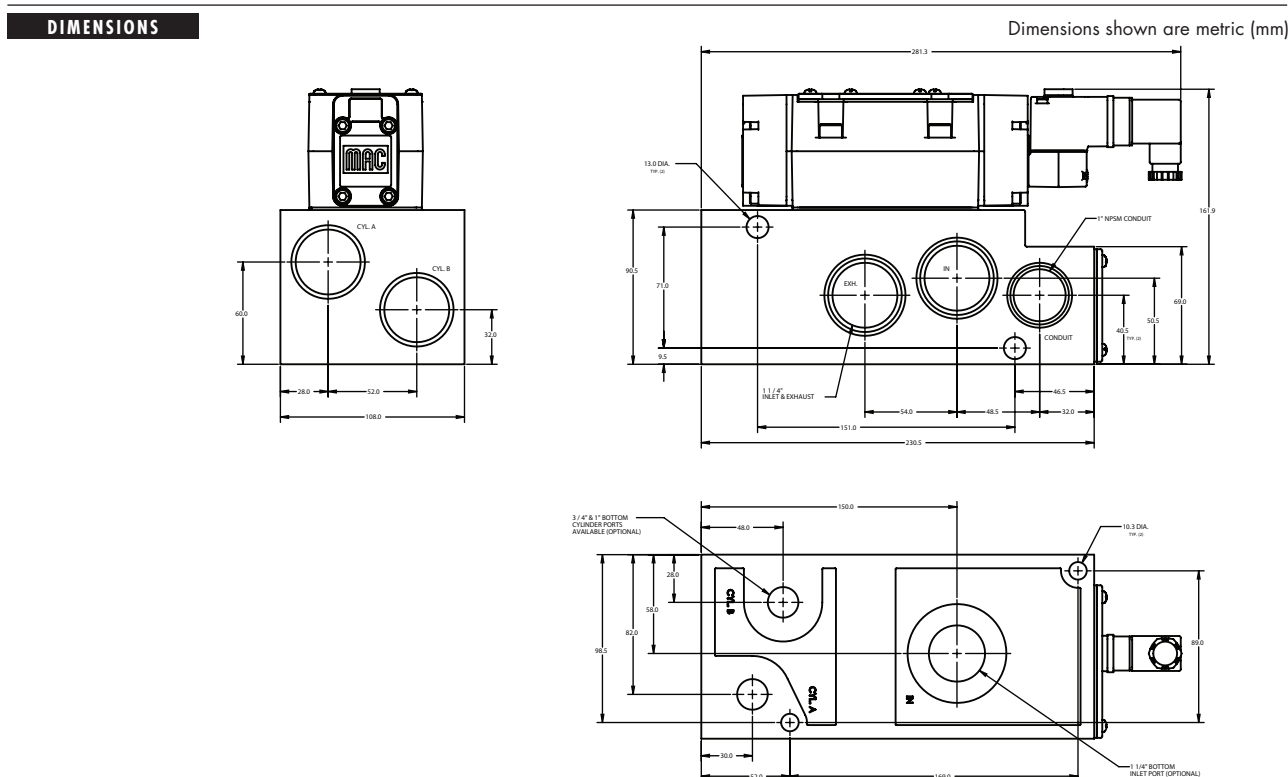
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min, G1 1/4" : 9600 NI/min
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 V=8.5 W Energize : 18 ms De-energize : 20 ms
	50Hz/6 W Energize : 15-25 ms De-energize : 19-28 ms

Spare parts :

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

Options :

- NPTF threads.

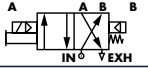
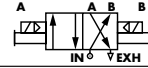
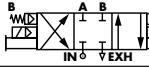
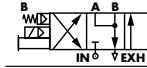
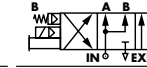


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/4" - G1" - G1 1/4"	9600 NI/min	sub-base "plug-in"	

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 base		6611A-000-PM- XXY DA	6621A-000-PM- XXY DA	6631A-000-PM- XXY DA	6641A-000-PM- XXY DA	6651A-000-PM- XXY DA
sub-base	Internal	6611A-451-PM- XXY DA	6621A-451-PM- XXY DA	6631A-451-PM- XXY DA	6641A-451-PM- XXY DA	6651A-451-PM- XXY DA
G3/4"	External	6611A-461-PM- XXY DA	6621A-461-PM- XXY DA	6631A-461-PM- XXY DA	6641A-461-PM- XXY DA	6651A-461-PM- XXY DA
sub-base	Internal	6611A-551-PM- XXY DA	6621A-551-PM- XXY DA	6631A-551-PM- XXY DA	6641A-551-PM- XXY DA	6651A-551-PM- XXY DA
G1"	External	6611A-561-PM- XXY DA	6621A-561-PM- XXY DA	6631A-561-PM- XXY DA	6641A-561-PM- XXY DA	6651A-561-PM- XXY DA
sub-base	Internal	6611A-651-PM- XXY DA	6621A-651-PM- XXY DA	6631A-651-PM- XXY DA	6641A-651-PM- XXY DA	6651A-651-PM- XXY DA
G1 1/4"	External	6611A-661-PM- XXY DA	6621A-661-PM- XXY DA	6631A-661-PM- XXY DA	6641A-661-PM- XXY DA	6651A-661-PM- XXY DA

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

SOLENOID OPERATOR ➤

XX Y DA *

XX Voltage	Y Manual operator
11 110V~/50Hz	1 Non-locking
12 220V~/50Hz	2 Locking
22 24V~/50Hz	
59 24V~/2,5W	
87 24V~/17,1W	
61 24V~/8,5W	

* Other options available, see page 305.

OPTIONS

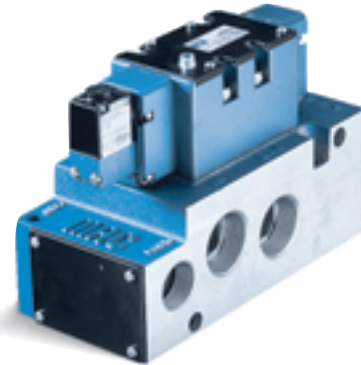
6611A-XXX-PM- XXY DA	- For piped pilot exhaust replace M by P.	- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
	- For lights on valve body, replace by 3.	- For lights on manifold, replace by 2 (sgl. light), by 3 (dbl. light).

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
0210	G1 1/4" Bottom inlet	Manifold base
0364	G1 1/4" Bottom inlet, G3/4" or G1" Bottom cyl.	Manifold base
0112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	G1" Manifold base

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

EXAMPLE : 6611A-451-PM-111DA **MOD 0364**



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200

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700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
 2. Bottom ports : Refer to modification table.
 3. To order manifolds without the valve, choose the manifold from the above table, then add 6600A as a prefix. Example 6600A-451.
 4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
 5. 2 position and 3 position valve bodies are not interchangeable.



100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

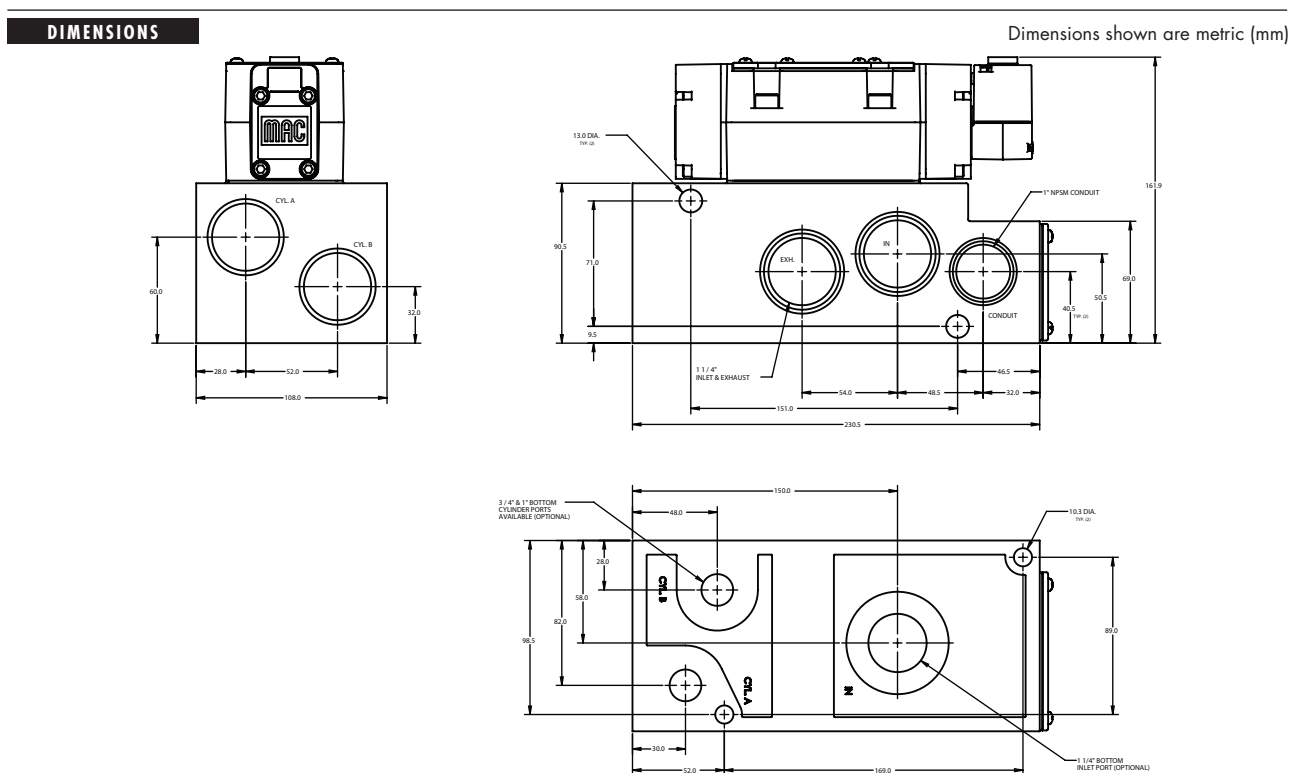
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min, G1 1/4" : 9600 NI/min
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 V=8.5 W Energize : 18 ms De-energize : 20 ms 50Hz/6 W Energize : 15-25 ms De-energize : 19-28 ms

Spare parts :

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

Options :

- NPTF threads.

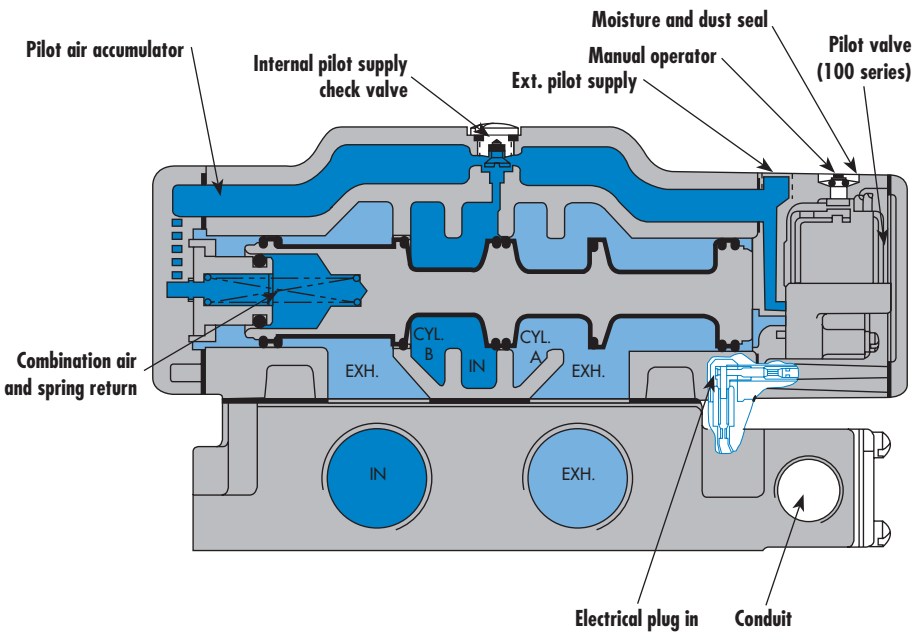


Direct solenoid and solenoid pilot operated valves

Individual mounting

sub-base
"plug-in"

Series



SERIES FEATURES

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

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1300

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ISO 1

ISO 2

ISO 3

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 G1/8" pilot exhaust connection which can be either muffled or piped away and the external pilot supply connection.

MAIN VALVE

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

ACCUMULATOR

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

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

DIFFERENTIAL RETURN

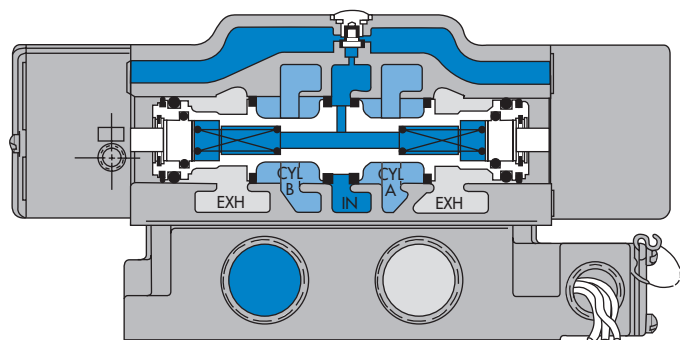
Single solenoid pilot or single air pilot operated models contain a combination spring and air assisted differential return. Supplied from the accumulator it balances the shifting forces for consistent operation and positive spool return.

BASES

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

3-POSITION VALVES

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



3-POSITION DOUBLE
SOLENOID CLOSED CENTER

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/4" - G1" - G1 1/4" - G1 1/2"	15900 NI/min	sub-base "plug-in"	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
Valve less base	1301G-XXYD-XX	1303G-XXYD-XX	1307G-XXYD-XX	1308G-XXYD-XX
Sub base G3/4"	1321G-XXYD-XX	1323G-XXYD-XX	1327G-XXYD-XX	1328G-XXYD-XX
Sub base G1"	1331G-XXYD-XX	1333G-XXYD-XX	1337G-XXYD-XX	1338G-XXYD-XX
Sub base G1 1/4"	1351G-XXYD-XX	1353G-XXYD-XX	1357G-XXYD-XX	1358G-XXYD-XX
Sub base G1 1/2"	1361G-XXYD-XX	1363G-XXYD-XX	1367G-XXYD-XX	1368G-XXYD-XX



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ISO 1
ISO 2
ISO 3

SOLENOID OPERATOR ►

XX Voltage	Y Manual operator	X Pilot air	X Indicator light
11 110V~/50Hz	1 Non-locking	3 Internal	5 With light in base
12 220V~/50Hz	2 Locking	4 External	
22 24V~/50Hz			
87 24V~/17,1W			
59 24V~/2,5W			
61 24V~/8,5W			

* Other options available, see page 305.

Bases	
10952-0005P	G3/4" BASE ASS'Y - SGL. (BSPP)
10952-0006P	G3/4" BASE ASS'Y - DBL. (BSPP)
10952-XX05P	G3/4" BASE ASS'Y - SGL. - W/LIGHT (BSPP)
10952-XX06P	G3/4" BASE ASS'Y - DBL. - W/LIGHT (BSPP)
10953-0005P	G1" BASE ASS'Y - SGL. (BSPP)
10953-0006P	G1" BASE ASS'Y - DBL. (BSPP)
10953-XX05P	G1" BASE ASS'Y - SGL. - W/LIGHT (BSPP)
10953-XX06P	G1" BASE ASS'Y - DBL. - W/LIGHT (BSPP)
10954-0005P	G1 1/4" BASE ASS'Y - SGL. (BSPP)
10954-0006P	G1 1/4" BASE ASS'Y - DBL. (BSPP)
10954-XX05P	G1 1/4" BASE ASS'Y - SGL. - W/LIGHT (BSPP)
10954-XX06P	G1 1/4" BASE ASS'Y - DBL. - W/LIGHT (BSPP)
10955-0005P	G1 1/2" BASE ASS'Y - SGL. (BSPP)
10955-0006P	G1 1/2" BASE ASS'Y - DBL. (BSPP)
10955-XX05P	G1 1/2" BASE ASS'Y - SGL. - W/LIGHT (BSPP)
10955-XX06P	G1 1/2" BASE ASS'Y - DBL. - W/LIGHT (BSPP)

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

BOTTOM PORTS available only on G3/4" valves
For bottom ports only specify **MOD 0002**
For side and bottom ports specify **MOD 0004**
EXAMPLE : 1321G-111D-1 **MOD 0002**

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 11500 NI/min, G1" : 13700 NI/min, G1 1/4" : 15400 NI/min, G1 1/2" : 15900 NI/min		
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 V= / 8.5 W	Energize : 20 ms	De-energize : 28 ms
	50Hz/6 W	Energize : 17-23 ms	De-energize : 29-35 ms

Spare parts :

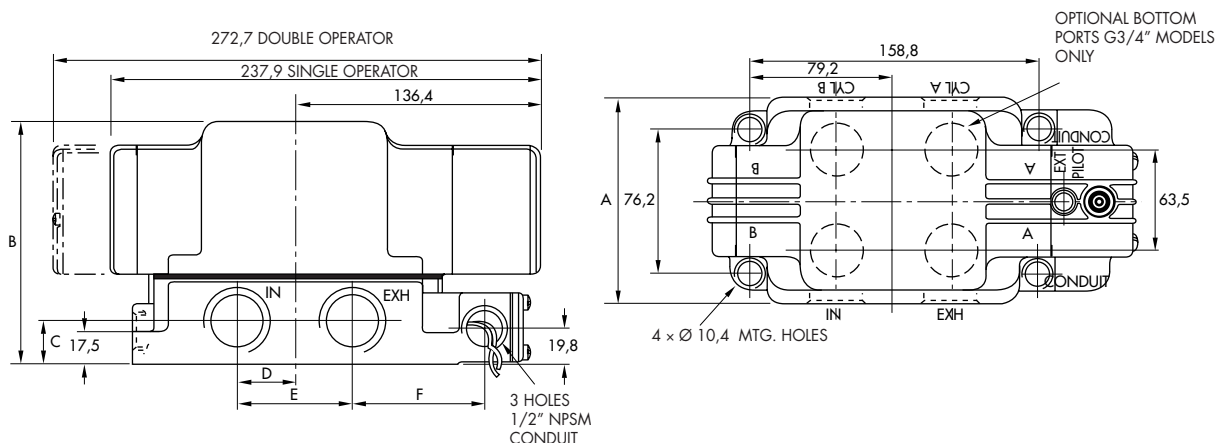
- Solenoid operator (power ≥ 4 W) : D1-XXBD. • Pressure seal between valve and base : 16083.
- Pilot valve : 150B-XXBD, including mounting screws 32180 and adaptor plate N-03001.
- Mounting screw valve to base (x4) : 32396.

Options :

- NPTF threads. • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F
G3/4", G1"	111.3	132.4	23.8	31.7	63.5	71.4
G1 1/4"	114.3	148.3	30.2	38.1	76.2	65.0
G1 1/2"				35.0	69.9	68.0

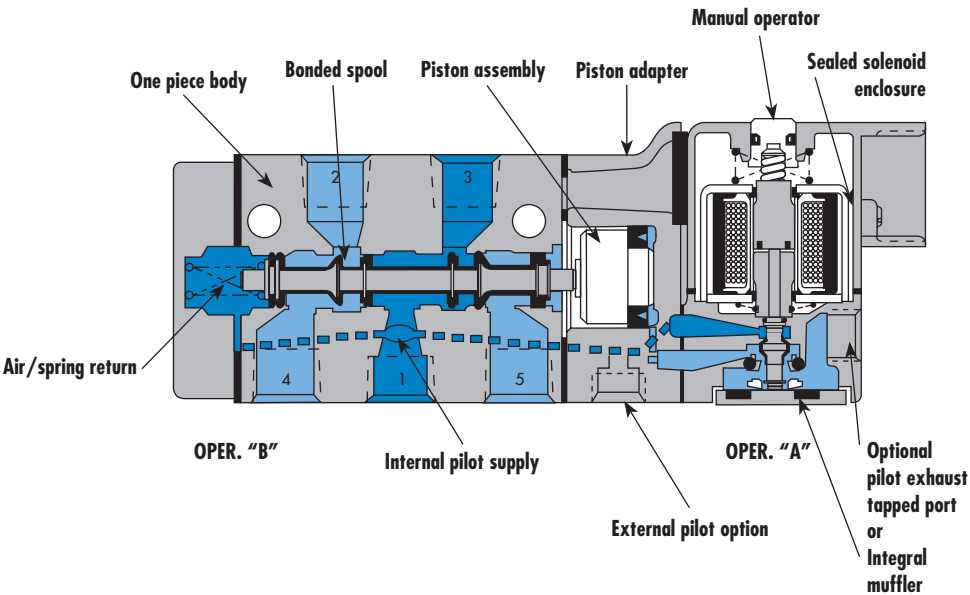
Direct solenoid and solenoid pilot operated valves

Individual mounting

inline	
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Manifold mounting

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

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

Series

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100

200

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6500

6600

1300

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ISO 1

ISO 2

ISO 3

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 1.3 bar on single solenoid or 0.7 bar on double solenoid valves in 2-position models, or less than 1.3 bar on 3-position double solenoid models. Also an External Pilot is required when main valve pressure is in excess of 10 bar.

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

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

DUAL PRESSURE (TWO INLET) APPLICATIONS :

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

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

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

MULTIPLE PRESSURES TO A STACK :

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

VACUUM APPLICATIONS :

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

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

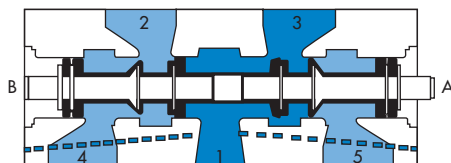
For dual pressure, single exhaust type valves, vacuum should be connected to port #1 (Inlet) and ports #4 & #5 (Exhausts) to atmosphere.

SELECTOR APPLICATIONS :

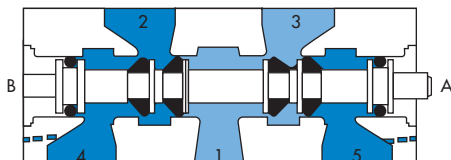
Use an External Pilot model as described above, if both pressures are below the minimum pilot pressure; otherwise use an Internal Pilot model. In either case, use a single pressure model and connect the higher pressure to port #1 (Inlet) and the lower pressure to port #4 (Exhaust) if using cylinder port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

SPOOL CONFIGURATIONS

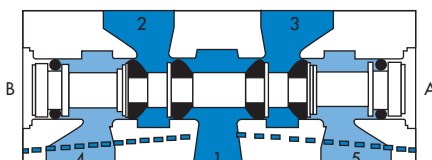
2-POSITION SGL. PRESSURE (SPOOL #12184)
B ACTUATED SHOWN



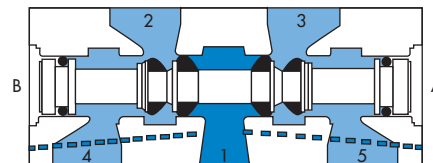
2-POSITION DUAL PRESSURE
(SPOOL ASSY.#10266) B ACTUATED SHOWN



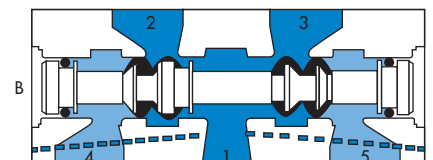
3-POSITION SGL. PRESS. CLOSED CENTER
(SPOOL ASSY. #S-00004) CENTER POSITION SHOWN



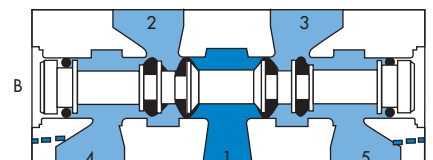
3-POSITION SGL. PRESS. OPEN CENTER
(SPOOL ASSY.#S-00003) CENTER POSITION SHOWN



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



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



Function	Port size	Flow [Max]	Individual mounting	Series
5/2 - 5/3	G1/4"	1400 NI/min	inline	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
G1/4"	Internal	811C-PM- XXYYZZ -155	821C-PM- XXYYZZ -155	825C-PM- XXYYZZ -555	825C-PM- XXYYZZ -655	825C-PM- XXYYZZ -855
	External	812C-PM- XXYYZZ -115	822C-PM- XXYYZZ -115	826C-PM- XXYYZZ -515	826C-PM- XXYYZZ -615	826C-PM- XXYYZZ -815

SOLENOID OPERATOR ➤

XX Y ZZ *

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

* Other options available, see page 305.

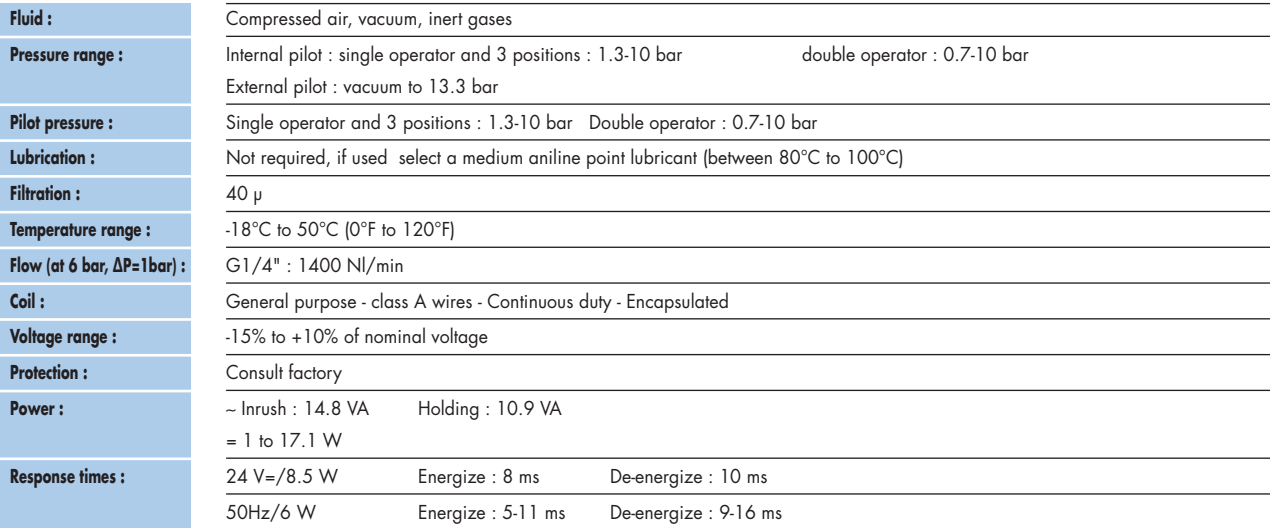
MODIFICATIONS - N° 0358 - G3/8" inlet and cylinder ports, exhaust ports G1/4"

MODIFICATIONS - N° 1080 - NAMUR interface.

Add mod. N° after valve part n°. - **EXAMPLE** : 811C-PM-111CA-155 Mod. 0358.

OPTIONS

811C-PM-111CA-155	- For 2 position dual pressure : replace by 2.
825C-PM-111CA-855	- For 3 position dual pressure, pressure center : replace by 7.

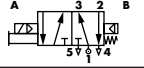
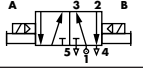
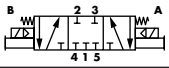
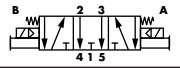
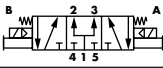


Function	Port size	Flow [Max]	Manifold mounting	Series
5/2 - 5/3	G1/4"	1400 NI/min	stacking body with 1 common port (inlet)	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	811C-PM- XXYYZ -135	821C-PM- XXYYZ -135	825C-PM- XXYYZ -535	825C-PM- XXYYZ -635	825C-PM- XXYYZ -835

SOLENOID OPERATOR ➤

XX Y ZZ *

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

* Other options available, see page 305.

MANIFOLD END PLATE KITS (BSPP)*		
INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08001-01-01P	M-08001-02-01P	3 com. port or 1 com. port models, stacks of 1 thru 16 valves
M-00005-01-01P	M-00005-02-01P	3 com. port or 1 com. port models, stacks of 17 or more valves

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01

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

OPTIONS

811C-PM-111BA-135

- For 2 position dual pressure : replace by 2.

825C-PM-111BA-835

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



35

100

200

55

56

57

58

59

45

700

900

82

6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar double operator : 0.7-10 bar External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NI/min		
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 V= / 8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

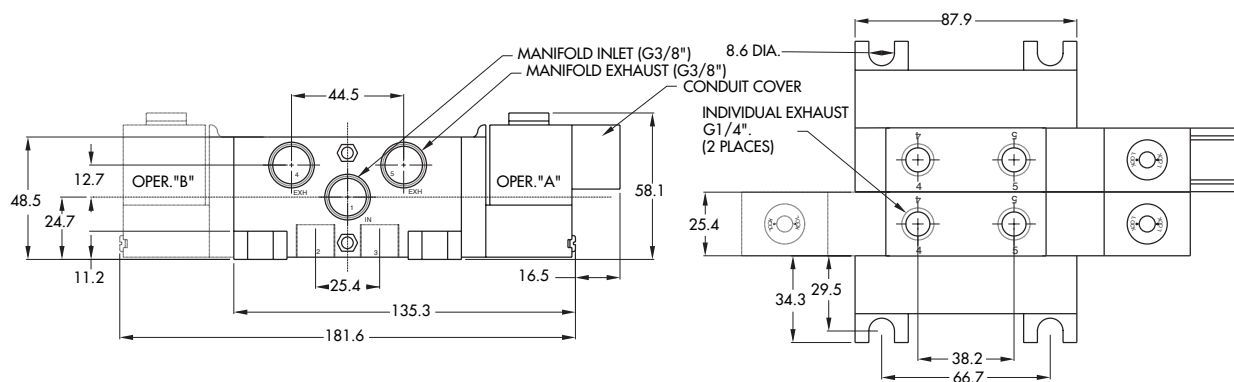
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002

Options :

- NPTF threads. • Dual inlet block: M-08003 • Flow control/muffler (G1/4") : 10951

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1400 NI/min	stacking body with 3 common ports (inlet & exhausts)	

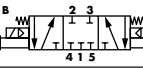
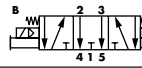
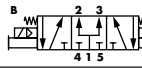
OPERATIONAL BENEFITS

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



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

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
					
G1/4"	811C-PM- XXYYZ -125	821C-PM- XXYYZ -125	825C-PM- XXYYZ -525	825C-PM- XXYYZ -625	825C-PM- XXYYZ -825
G3/8"	811C-PM- XXYYZ -126	821C-PM- XXYYZ -126	825C-PM- XXYYZ -526	825C-PM- XXYYZ -626	825C-PM- XXYYZ -826

SOLENOID OPERATOR ➤

XX Y ZZ*

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

* Other options available, see page 305.

MANIFOLD END PLATE KITS (BSPP)*

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01

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

OPTIONS

811C-PM-111RA-125

- For 2 position dual pressure : replace by 2.

825C-PM-111RA-825

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar double operator : 0.7-10 bar External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NI/min, G3/8" : 1400 NI/min		
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 V= / 8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/ 6 W	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

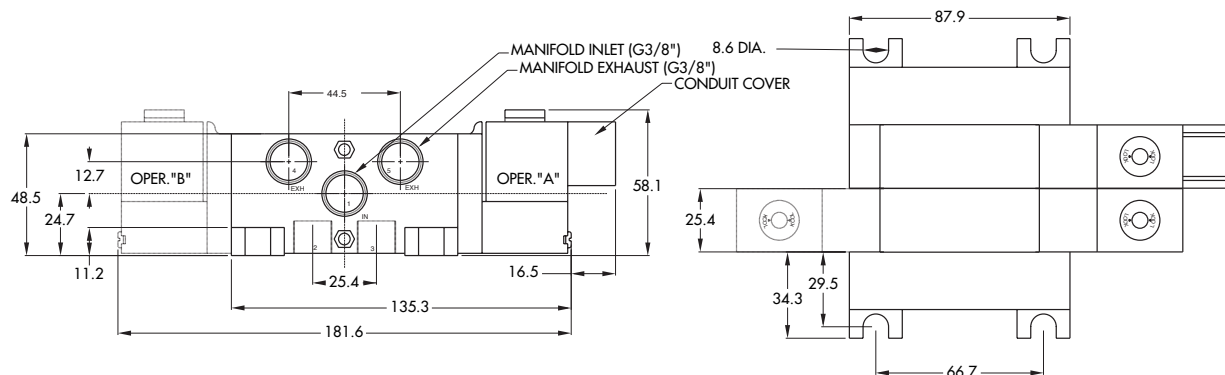
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)

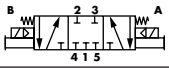
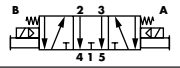
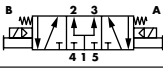


Function	Port size	Flow [Max]	Manifold mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1400 NI/min	stacking body with 3 common ports and integral F.C.	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	811C-PM- XXYYZZ -195	821C-PM- XXYYZZ -195	825C-PM- XXYYZZ -595	825C-PM- XXYYZZ -695	825C-PM- XXYYZZ -895
G3/8"	811C-PM- XXYYZZ -196	821C-PM- XXYYZZ -196	825C-PM- XXYYZZ -596	825C-PM- XXYYZZ -696	825C-PM- XXYYZZ -896

SOLENOID OPERATOR ➤

XX Y ZZ *

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

* Other options available, see page 305.

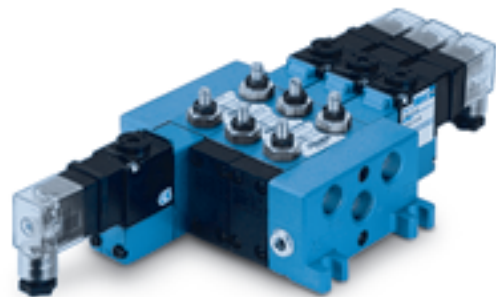
MANIFOLD END PLATE KITS (BSPP)*		
INT. PILOT - PART N°.	EXT. PILOT - PART N°.	MODELS USED WITH
M-08001-01-01P	M-08001-02-01P	3 com. port or 1 com. port models, stacks of 1 thru 16 valves
M-00005-01-01P	M-00005-02-01P	3 com. port or 1 com. port models, stacks of 17 or more valves

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01

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

OPTIONS

811C-PM-111RA-195	- For 2 position dual pressure : replace by 2.
825C-PM-111RA-895	- For 3 position dual pressure, pressure center: replace by 7.



TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar double operator : 0.7-10 bar External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NI/min, G3/8" : 1400 NI/min		
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 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

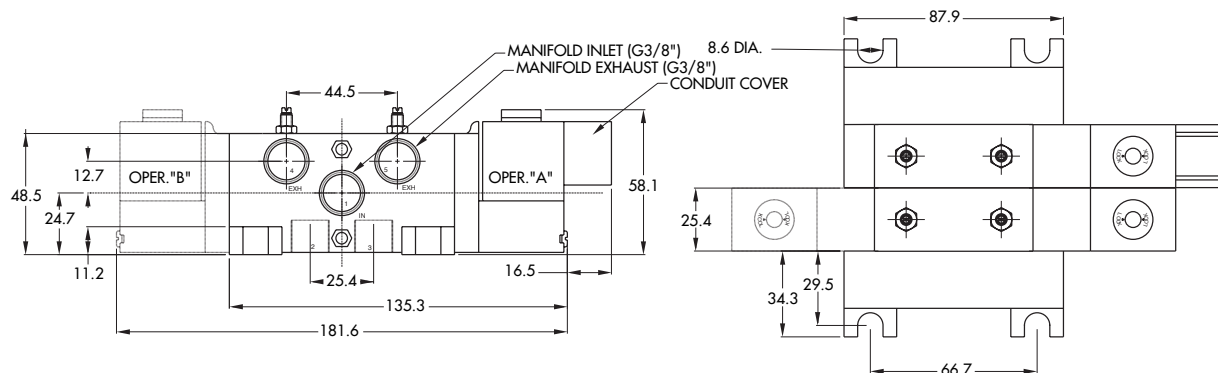
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)

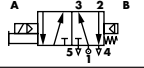
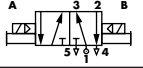
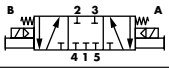
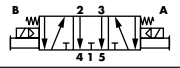
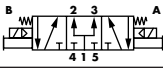


Function	Port size	Flow [Max]	Manifold mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1400 NI/min	stacking body with 3 common ports with common conduit	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	811C-PM- XXYYZZ -145	821C-PM- XXYYZZ -145	825C-PM- XXYYZZ -545	825C-PM- XXYYZZ -645	825C-PM- XXYYZZ -845
G3/8"	811C-PM- XXYYZZ -146	821C-PM- XXYYZZ -146	825C-PM- XXYYZZ -546	825C-PM- XXYYZZ -646	825C-PM- XXYYZZ -846

SOLENOID OPERATOR ➤

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	DA Common conduit
12 220V~/50Hz	2 Locking	
22 24V~/50Hz		
59 24V=/2,5W		
87 24V=/17,1W		
61 24V=/8,5W		

* Other options available, see page 305.

MODIFICATIONS

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

TO ORDER - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-145 **MOD 0295**

MANIFOLD END PLATE KITS (BSPP)*

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08002-01-01

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

OPTIONS

811C-PM-111DA-145

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-845

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar double operator : 0.7-10 bar External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NI/min, G3/8" : 1400 NI/min		
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 V= / 8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

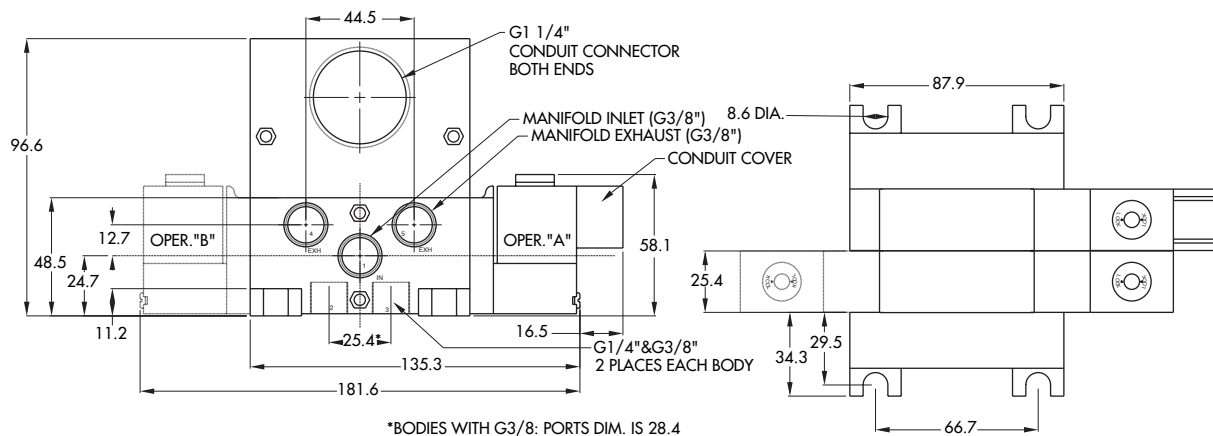
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)

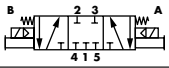
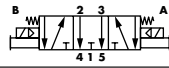
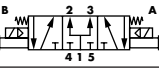


Function	Port size	Flow [Max]	Manifold mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1400 NI/min	stacking body with 3 common ports with C. C. & integral exh. E. C.	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	811C-PM- XXYYZZ -165	821C-PM- XXYYZZ -165	825C-PM- XXYYZZ -565	825C-PM- XXYYZZ -665	825C-PM- XXYYZZ -865
G3/8"	811C-PM- XXYYZZ -166	821C-PM- XXYYZZ -166	825C-PM- XXYYZZ -566	825C-PM- XXYYZZ -666	825C-PM- XXYYZZ -866

SOLENOID OPERATOR ➤

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 110V~/50Hz	1 Non-locking	DA Common conduit
12 220V~/50Hz	2 Locking	
22 24V~/50Hz		
59 24V~/2,5W		
87 24V~/17,1W		
61 24V~/8,5W		

* Other options available, see page 305.

MODIFICATIONS

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

TO ORDER - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-165 **MOD 0295**

MANIFOLD END PLATE KITS (BSPP)*

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08002-01-01
Note : (1) end plate kit required per stack.

OPTIONS

811C-PM-111DA-165

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-865

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar double operator : 0.7-10 bar External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NI/min, G3/8" : 1400 NI/min		
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 V=8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

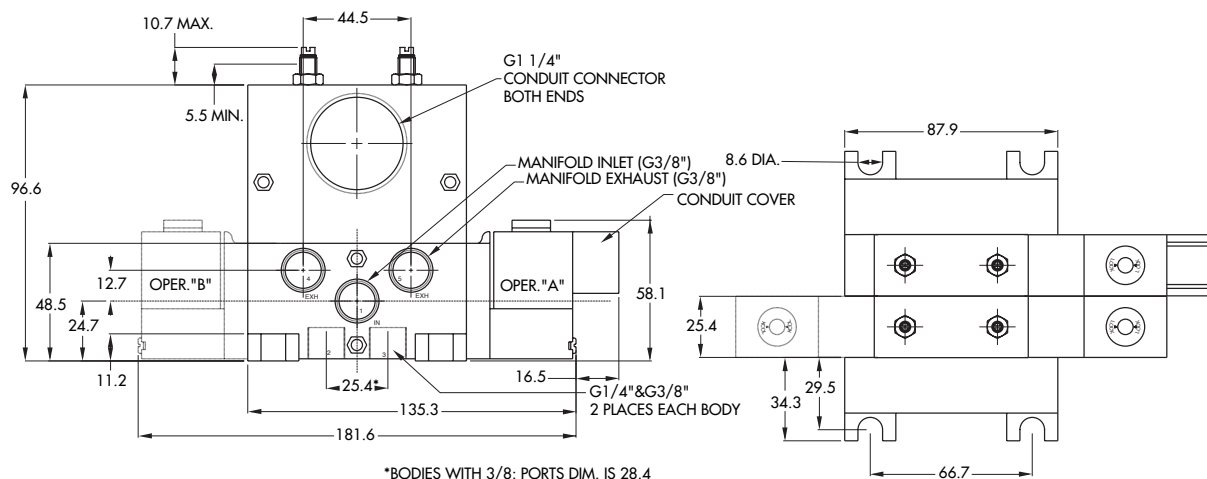
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)



Direct solenoid and solenoid pilot operated valves

Individual mounting

valve only

Series

Manifold mounting

valve only

35

100

200

55

56

57

58

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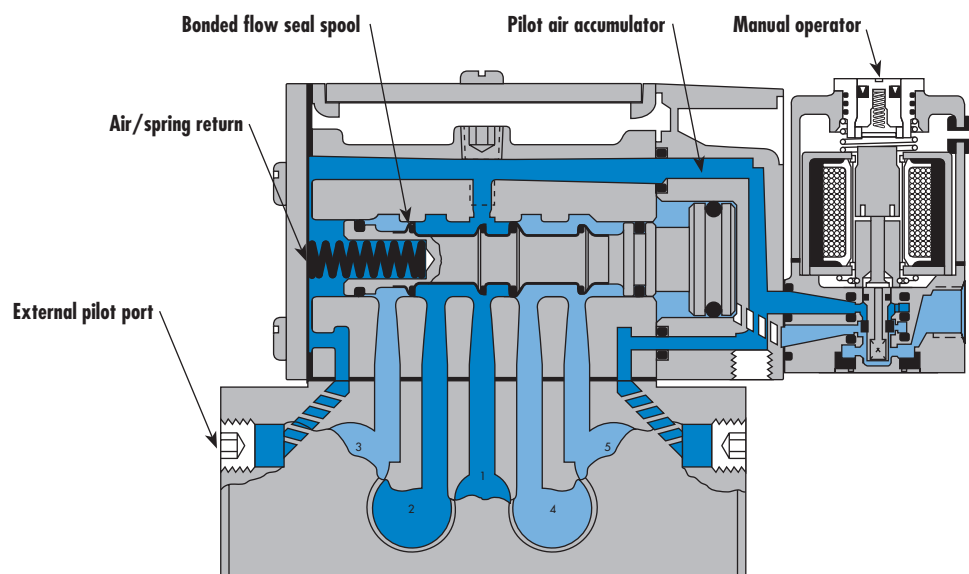
1300

800

ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

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

*Note: 1Bar = 14.5 PSIG

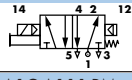
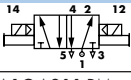
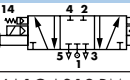
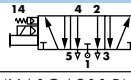
Function	Port size	Flow [Max]	Individual mounting & Manifold Mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1600 NI/min	valve only	

OPERATIONAL BENEFITS

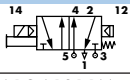
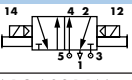
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return force thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.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

HOW TO ORDER

SINGLE PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MVA1C-A111-PM- XXYYZZ	MVA1C-A211-PM- XXYYZZ	MVA1C-A312-PM- XXYYZZ	MVA1C-A311-PM- XXYYZZ
External	MVA1C-A121-PM- XXYYZZ	MVA1C-A221-PM- XXYYZZ	MVA1C-A322-PM- XXYYZZ	MVA1C-A321-PM- XXYYZZ

DUAL PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MVA1C-A131-PM- XXYYZZ	MVA1C-A231-PM- XXYYZZ	MVA1C-A331-PM- XXYYZZ
Internal port 5	MVA1C-A135-PM- XXYYZZ	MVA1C-A232-PM- XXYYZZ	MVA1C-A332-PM- XXYYZZ
External	MVA1C-A141-PM- XXYYZZ	MVA1C-A241-PM- XXYYZZ	MVA1C-A341-PM- XXYYZZ

SOLENOID OPERATOR ➤

XX Y ZZ *

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

Note : Photo shown with JC connector.

* Other options available, see page 305.
Note : ISO valves are delivered w/o base. See page 261 for base code.

OPTIONS

MVA1C-A111-PM- XXYYZZ	- 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.



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ISO 1
ISO 2
ISO 3

Direct solenoid and solenoid pilot operated valves

Individual mounting

valve only

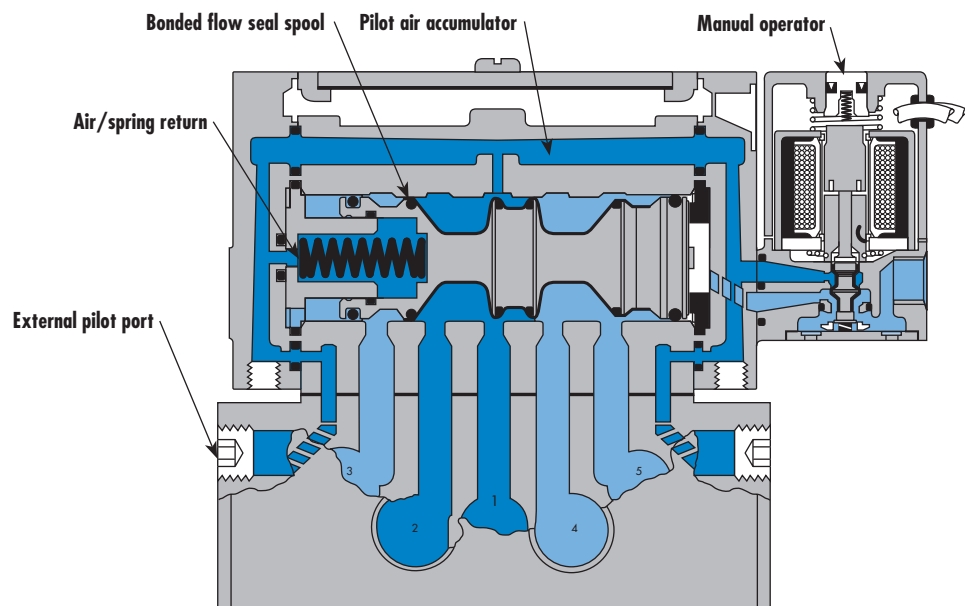
Series

Manifold mounting

valve only

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1300

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ISO 1

ISO 2

ISO 3

SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

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

*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow [Max]	Individual mounting & Manifold Mounting	Series
5/2 - 5/3	G3/8" - G1/2"	3000 NI/min	valve only	

OPERATIONAL BENEFITS

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

HOW TO ORDER

SINGLE PRESSURE VALVES

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

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ➤

XX Y ZZ*

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

Note : Photo shown with JC connector.

* Other options available, see page 305.

Note : ISO valves are delivered w/o base. See page 263 for base code.

OPTIONS

MV-A2B-A111-PM-**XXYYZZ**

- 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.



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ISO 1
ISO 2
ISO 3

Direct solenoid and solenoid pilot operated valves

Individual mounting

Series

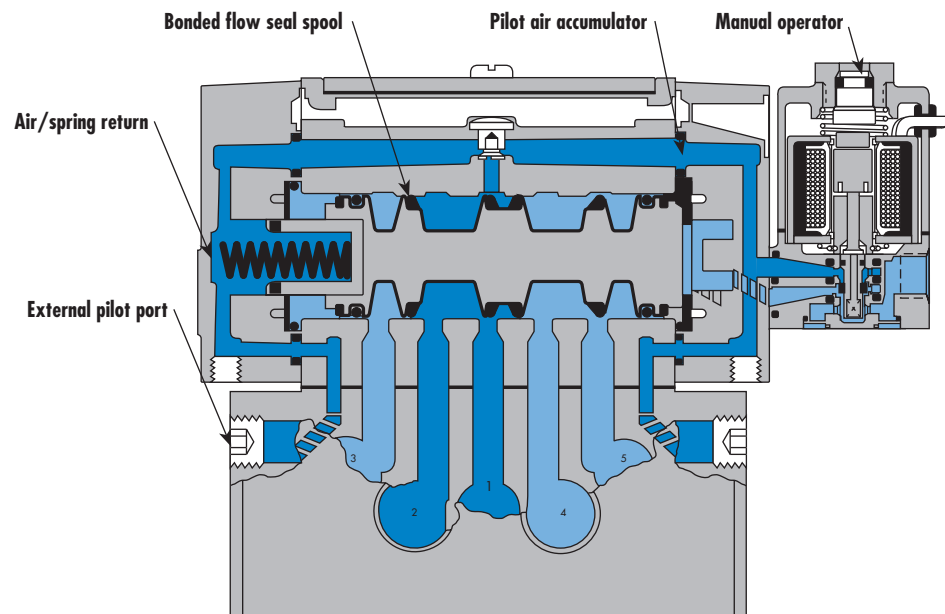
valve only

Manifold mounting

35

valve only

100



200

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57

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45

700

900

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6300

6500

6600

1300

800

ISO 1

ISO 2

ISO 3

SERIES FEATURES

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



VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

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

*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow [Max]	Individual mounting & Manifold Mounting	Series
5/2 - 5/3	G1/2" - G3/4"	6300 NI/min	valve only	

OPERATIONAL BENEFITS

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

HOW TO ORDER

SINGLE PRESSURE VALVES

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

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ➤

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

* Other options available, see page 305.

Note : ISO valves are delivered w/o base. See page 265 for base code.

OPTIONS

MV-A3B-A111-PM- XXYYZZ	- 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.



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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

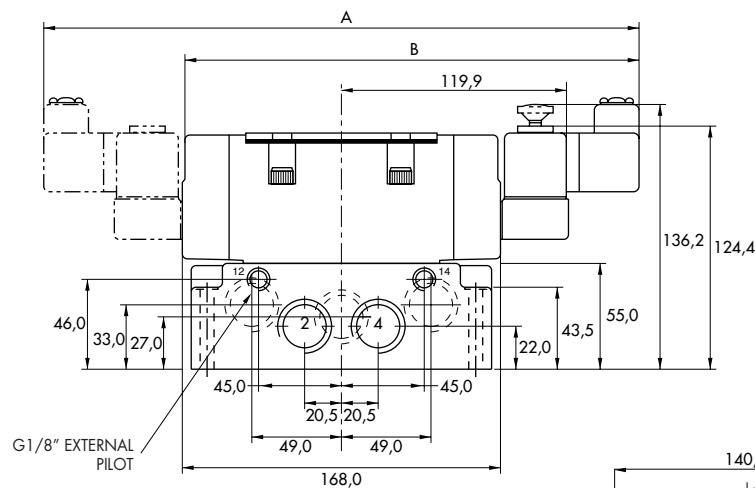
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar double operator : 0.7-10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar Double operator : 0.7-10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/2" : 6300 NI/min, G3/4" : 6300 NI/min		
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 V= / 8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/ 6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

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

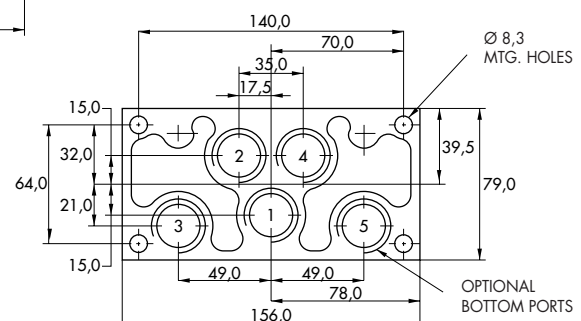
DIMENSIONS

Dimensions shown are metric (mm)



ISO 3 Individual mounting

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





Section 2 Remote air valves



R e m o t e a i r v a l v e s

Function	Port size	Flow [Max] NL/min
3/2 - 2/2	G1/8" - G1/4"	180
3/2 - 2/2	G1/8"	180
3/2 - 2/2	G1/4" - G3/8"	2500
3/2 - 2/2	G3/8" - G1/2" - G3/4"	6200
3/2 - 2/2	G1/2" - G3/4" - G1"	17400
3/2 - 2/2	G1" - G1 1/4" - G1 1/2"	33500
3/2 - 2/2	G2" - G2 1/2"	65000
4/2	G1/8" - G1/4"	700
4/2	G1/8" - G1/4"	800
4/2	G1/8" - G1/4"	1400
4/2 - 4/3	G1/8" - G1/4" - G3/8"	1350
4/2 - 4/3	G1/4" - G3/8"	1350
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100
4/2 - 4/3	G3/4" - G1"	9600
4/2 - 4/3	G3/4" - G1" - G1 1/4" - G1 1/2"	15900
5/2 - 5/3	G1/4"	1400
5/2 - 5/3	G1/4" - G3/8"	1600
5/2 - 5/3	G3/8" - G1/2"	3000
5/2 - 5/3	G1/2" - G3/4"	6300

Individual mounting			Manifold mounting			Series	
Inline	sub-base	valve only		stacking	sub-base	valve only	
P. 171					P. 173		1100
P. 177							55
P. 181							56
P. 185							57
P. 189							58
P. 193							59
P. 197				P. 199			700
P. 203				P. 205			900
	P. 209						82
	P. 215				P. 211		6300
	P. 221				P. 217		6500
	P. 227				P. 223		6600
	P. 233				P. 229		2700
P. 237							1800
		P. 241				P. 241	ISO 1
		P. 245				P. 245	ISO 2
		P. 249					ISO 3



R e m o t e a i r v a l v e s

Individual mounting Series

Inline	
--------	--

Manifold mounting 1100

sub-base	
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700

900

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6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

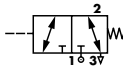
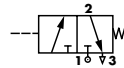
Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8" - G1/4"	180 NI/min	Inline	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. Powerful return spring.
4. Maximum shifting forces.



HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	1116A-114	1166A-114
G1/4"	1117A-114	1167A-114

Air pilot port : G1/8".

1100

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700

900

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6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

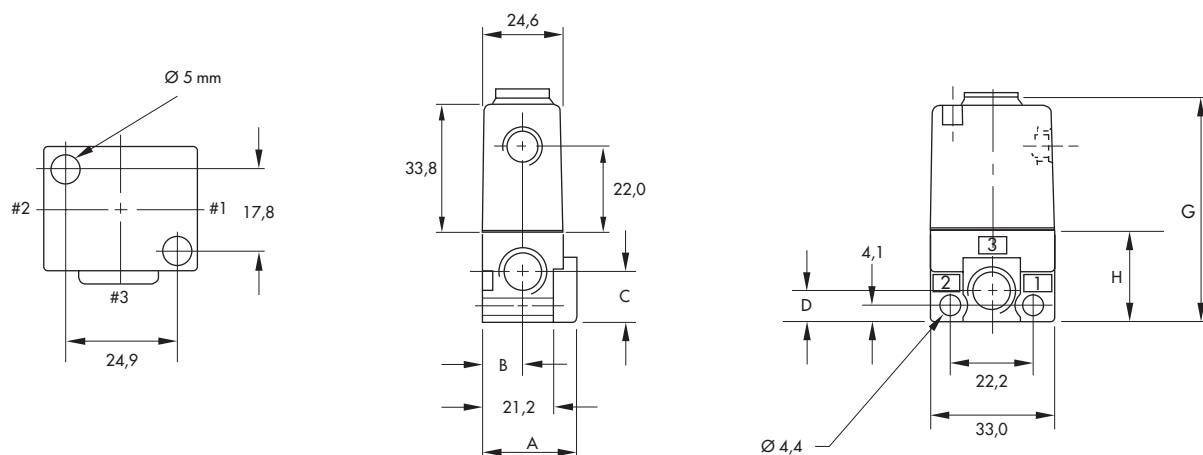
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 60°C (0°F to 140°F)
Flow (at 6 bar, ΔP=1bar) :	180 NI/min

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	G	H
G1/8"	28.4	12.7	14.0	8.0	60.1	23.2
G1/4"	29.8	13.3	12.7	9.9	60.9	24.1

Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8"	180 NI/min	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.



1100

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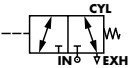
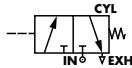
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HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	1130A-114	1170A-114
Sub-base G1/8"	1136A-114	1176A-114

Air pilot port : G1/8".
End plate kit (G1/4" ports) : A2-5004-01P.

OPTIONS

11X6A-111

- Replace by 2 for 2-way normally closed.
- Replace by 4 for 2-way normally open.

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 60°C (0°F to 140°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 180 Nl/min

Options :

- NPTF threads.

Dimensions shown are metric (mm)

16,8

30,1

59,5

12,7

17,8

25,4

63,5

66,9

G1/4" INLET & EXHAUST PORTS

G1/8" CYL. PORT

17,6

14,2

25,4
± 0,1

9,7 ± 0,2

2,3

4,8

OPTIONAL G1/8" BOTTOM PORTS

31,5

15,7

32,7

46,6

MT'G SLOT
Ø 6,6 MAX.

5,7



R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/4" - G3/8"	2500 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

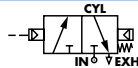
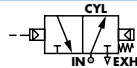
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

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

Air pilot port : G1/8".

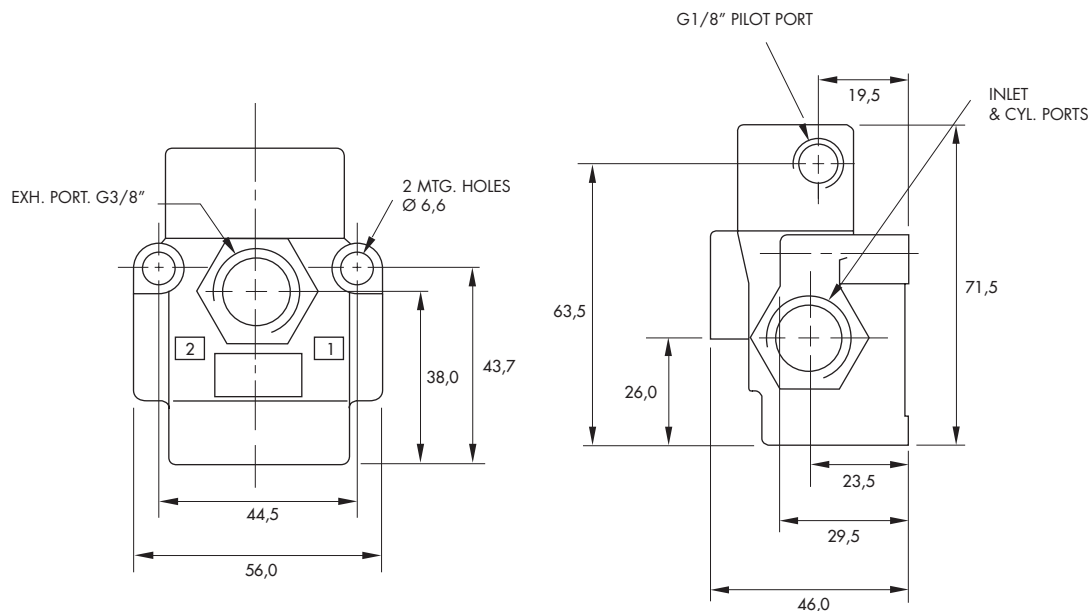
Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 1.7 bar. "RE" provides an external pilot port and should have a pressure range of 1.7 to 6.7 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2500 NL/min, G3/8" : 2500 NL/min

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

Options : • NPTF threads.

DIMENSIONS Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G3/8" - G1/2" - G3/4"	6200 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

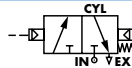
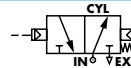
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

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

Air pilot port : G1/8".

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 1.7 bar. "RE" provides an external pilot port and should have a pressure range of 1.7 to 6.7 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

TECHNICAL DATA

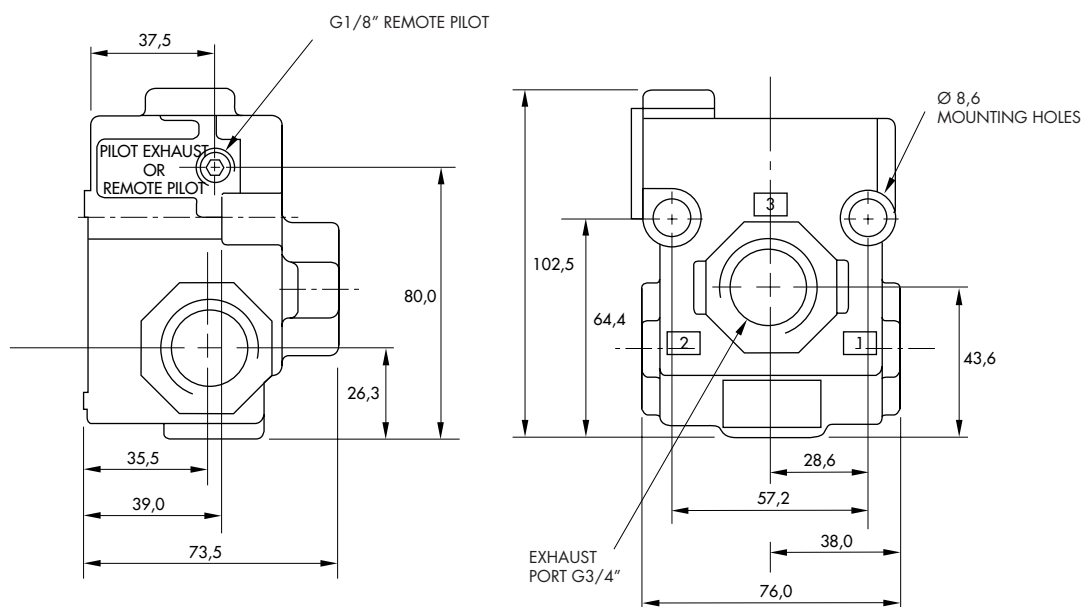
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar $\geq$ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/8" : 6000 NI/min, G1/2" : 6100 NI/min, G3/4" : 6200 NI/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/2" - G3/4" - G1"	17400 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

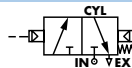
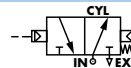
56

57

58

59

HOW TO ORDER

Port size	Air spring	NC valve	NO valve
			
G1/2"	Internal	57D-54-RA	57D-84-RA
G3/4"		57D-55-RA	57D-85-RA
G1"		57D-56-RA	57D-86-RA
G1/2"	External	57D-54-RE	57D-84-RE
G3/4"		57D-55-RE	57D-85-RE
G1"		57D-56-RE	57D-86-RE

Air pilot port : G1/8".

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 1.7 bar. "RE" provides an external pilot port and should have a pressure range of 1.7-5 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

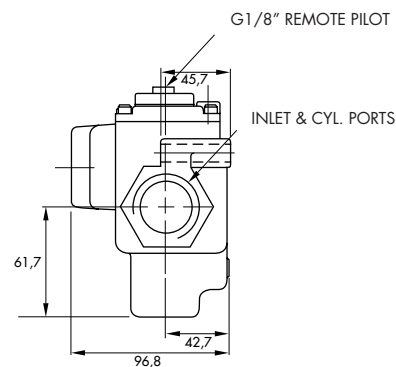
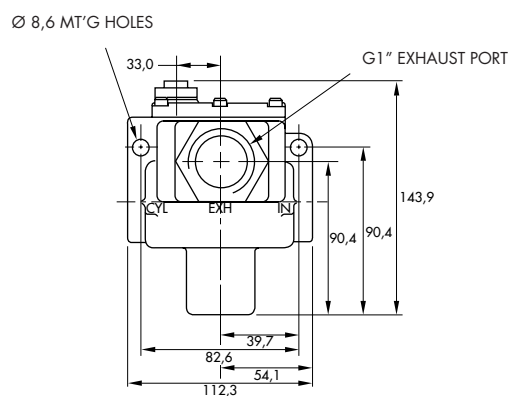
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar $\geq$ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/2" : 11000 NI/min, G3/4" : 15300 NI/min, G1" : 17400 NI/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1" - G1 1/4" - G1 1/2"	33500 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

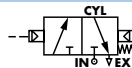
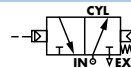
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Air spring	NC valve	NO valve
			
G1"	Internal	58D-54-RA	58D-84-RA
G1 1/4"		58D-55-RA	58D-85-RA
G1 1/2"		58D-56-RA	58D-86-RA
G1"	External	58D-54-RE	58D-84-RE
G1 1/4"		58D-55-RE	58D-85-RE
G1 1/2"		58D-56-RE	58D-86-RE

Air pilot port : G1/8".

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 1.7 bar. "RE" provides an external pilot port and should have a pressure range of 1.7-5 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar $\geq$ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$bar) :	G1" : 31200 NI/min, G1 1/4" : 32500 NI/min, G1 1/2" : 33500 NI/min

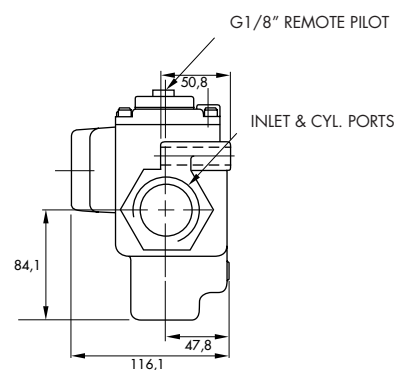
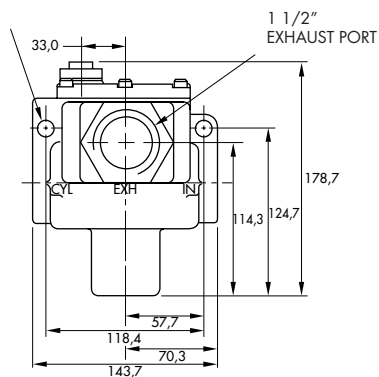
Spare parts : • Remote air pilot block : R-59003. • Check valve : 70019.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

Ø 13,5 MT'G HOLES





R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G2" - G2 1/2"	65000 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

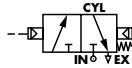
56

57

58

59

HOW TO ORDER

Port size	Air spring	NC valve
		
G2"	Internal	59B-55-RA
G2 1/2"		59B-56-RA
G2"	External	59B-55-RE
G2 1/2"		59B-56-RE

700

900

82

Air pilot port : G1/8".

Note: Designation "RE" required on remote air pilot models with main valve pressures of vacuum to 1.7 bar. "RE" provides an external pilot port and should have a pressure range of 1.7-5 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot signal pressure.

6300

6500

6600

2700

1800

ISO 1

ISO 2

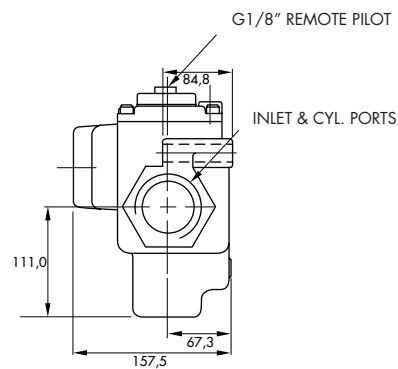
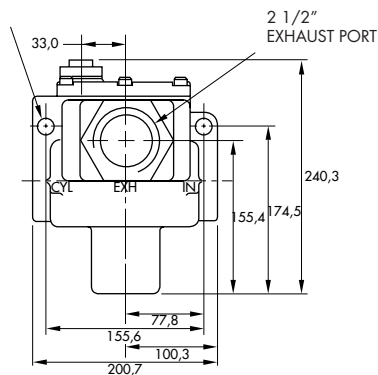
ISO 3

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G2" : 60000 NI/min, G2 1/2" : 65000 NI/min

- Spare parts : • Remote air pilot block : R-59003. • Check valve : 70019.
- Options : • NPTF threads.

DIMENSIONS Dimensions shown are metric (mm)

Ø 13,5 MT'G HOLES





R e m o t e a i r v a l v e s

Individual mounting

Inline

Series

Manifold mounting

stacking

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	G1/8" - G1/4"	700 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

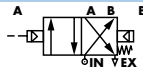
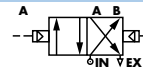
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57

58

59

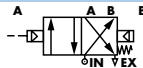
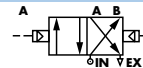
HOW TO ORDER

Port size	Single operator	Double operator
		
G1/8"	711C-13-RA	721C-13-RA
G1/4"	711C-14-RA	721C-14-RA

700

900

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Single operator	Double operator
		
G1/8"	712C-13-RA	722C-13-RA
G1/4"	712C-14-RA	722C-14-RA

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Air pilot port : G1/8".

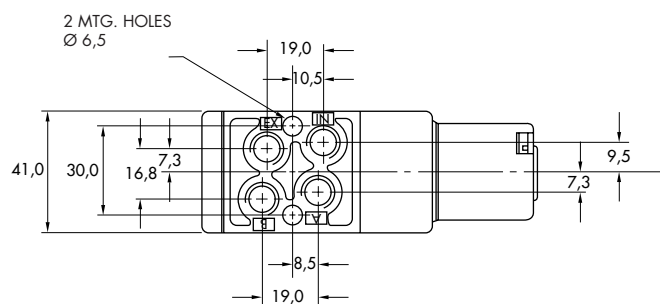
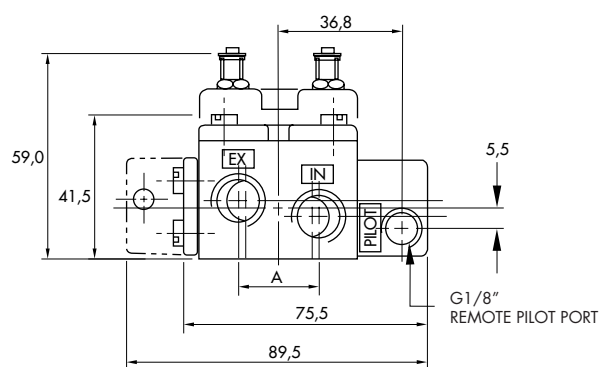
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.3 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$bar) :	G1/8" : 600 NI/min, G1/4" : 700 NI/min

- Spare parts : • Remote air operator : R-07002. • Valve cover plate with integral flow controls : N-07002.
- Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

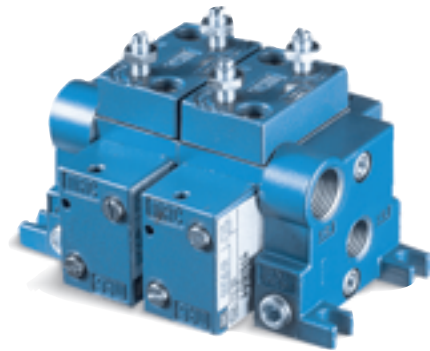


PORT SIZE	A
G1/8"	21.0
G1/4"	24.0

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	G1/8" - G1/4"	800 NI/min	stacking	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

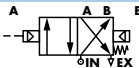
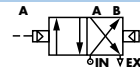
1800

ISO 1

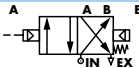
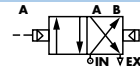
ISO 2

ISO 3

HOW TO ORDER

Port size	Single operator	Double operator
		
G1/8"	713C-13-RA	723C-13-RA
G1/4"	713C-14-RA	723C-14-RA

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Single operator	Double operator
		
G1/8"	714C-13-RA	724C-13-RA
G1/4"	714C-14-RA	724C-14-RA

End plate kit (Port size G1/4") : M-07001-01-01P, internal pilot.
M-07001-02-01P, external pilot.

Air pilot port : G1/8".

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.3 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/8" : 700 NI/min, G1/4" : 800 NI/min

Spare parts :

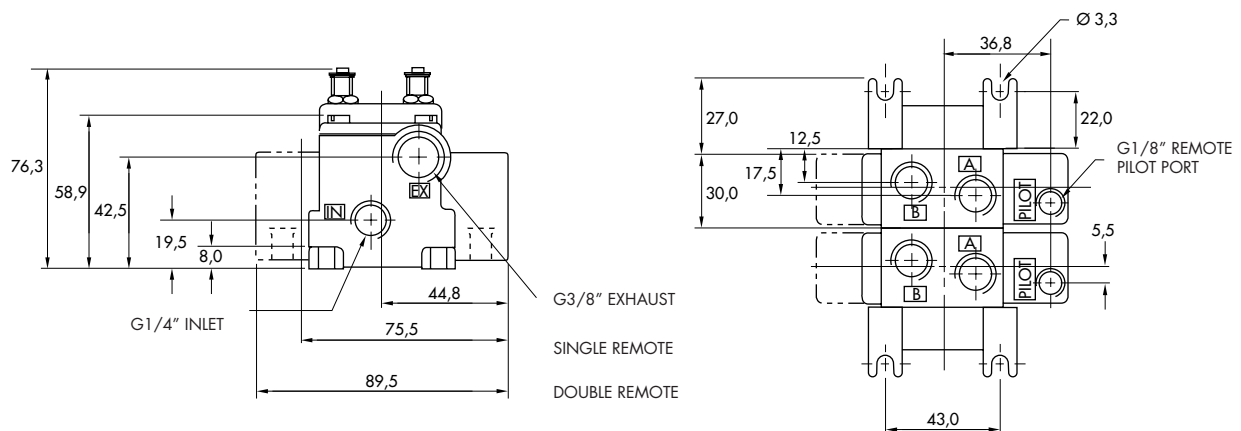
- Remote air operator : R-07002. • Valve cover plate with integral flow controls : N-07004.
- Pressure seal between valves : 16368. • Tie-rod (x2) : 19674.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Inline

Series

Manifold mounting

stacking

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

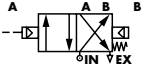
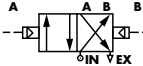
ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2	G1/8" - G1/4"	1400 NI/min	Inline	

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Air pilot port : G1/8".



1100

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6300

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2700

1800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/8" : 800 NI/min, G1/4" : 1200 NI/min

Spare parts :

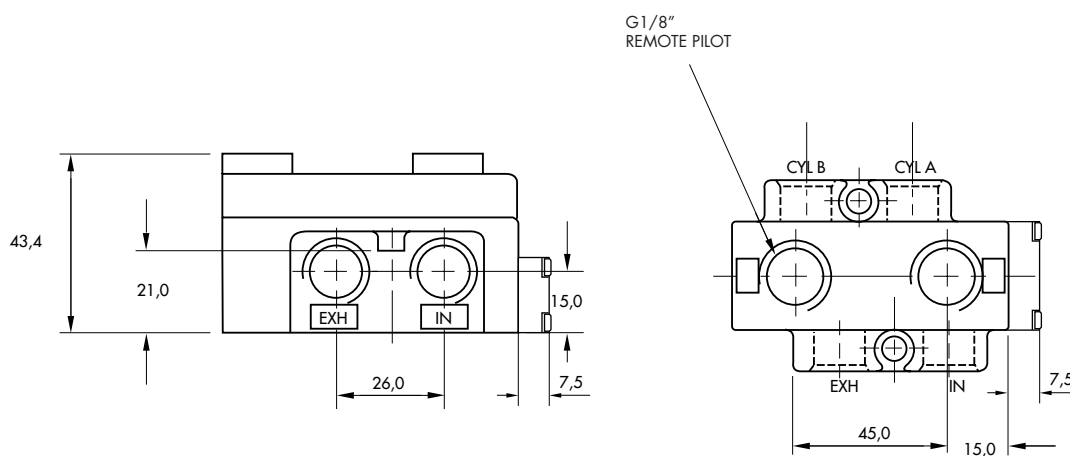
- Remote air operator (single operator) : R-09002-01P. • Remote air operator (double operator) : R-09002-02P.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

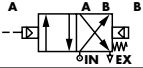
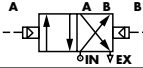


Function	Port size	Flow [Max]	Manifold mounting	Series
4/2	G1/8" - G1/4"	1400 NI/min	stacking	

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Single operator	Double operator
		
G1/8"	917B-RA	927B-RA
G1/4"	918B-RA	928B-RA

Air pilot port : G1/8".
 Manifold fastening kit (G3/8") : M-09001-01P.



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ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/8" : 800 NI/min, G1/4" : 1200 NI/min

Spare parts :

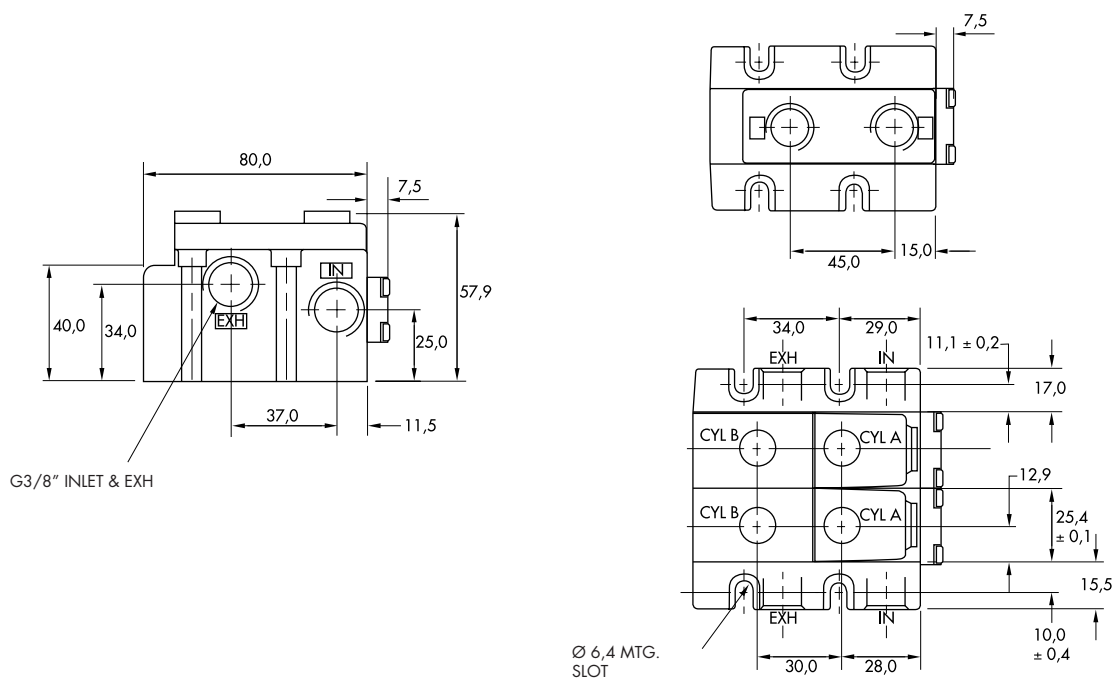
- Remote air operator (single operator) : R-09002-01P. • Remote air operator (double operator) : R-09002-02P.
- Pressure seal between valves : 16358. • Tie-rod (x2) : 19615.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

sub-base	
----------	--

Series

Manifold mounting

sub-base	
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2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/8" - G1/4" - G3/8"	1350 NI/min	sub-base	

OPERATIONAL BENEFITS

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



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6300

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2700

1800

ISO 1

ISO 2

ISO 3

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 less base	82A-AB-000-RA	82A-BB-000-RA	82A-EB-000-RA	82A-FB-000-RA	82A-GB-000-RA
Sub-base G1/8"	82A-AB-DAA-RA	82A-BB-DAD-RA	82A-EB-DAD-RA	82A-FB-DAD-RA	82A-GB-DAD-RA
Sub-base G1/4"	82A-AB-EAA-RA	82A-BB-EAD-RA	82A-EB-EAD-RA	82A-FB-EAD-RA	82A-GB-EAD-RA
Sub-base G3/8"	82A-AB-FAA-RA	82A-BB-FAD-RA	82A-EB-FAD-RA	82A-FB-FAD-RA	82A-GB-FAD-RA

OPTIONS

82A-AB-000-RA

— For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H.

TECHNICAL DATA

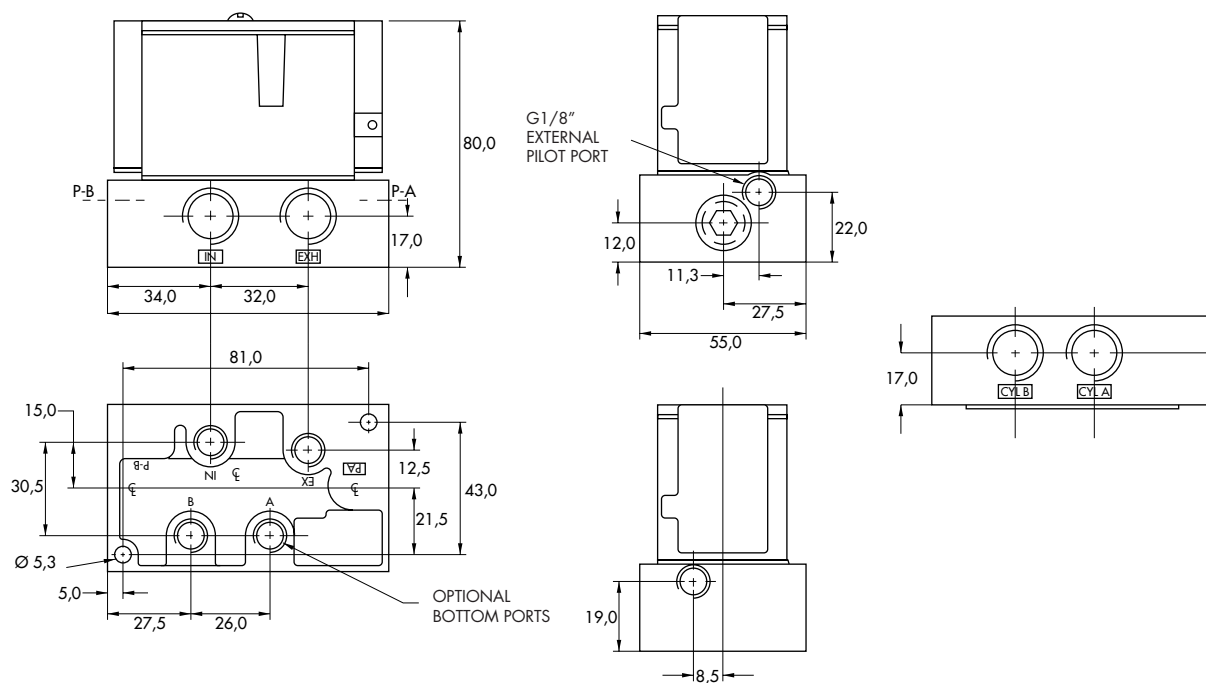
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/8" : 900 NI/min, G1/4" : 1300 NI/min, G3/8" : 1350 NI/min

Spare parts : • Remote air adapter assy.: R-82003.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G1/4" - G3/8"	1350 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

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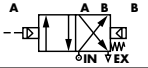
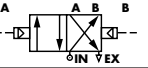
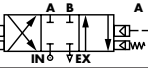
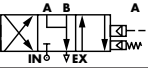
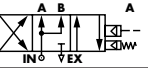
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base	Internal only	82A-AB-000-TM-RA14	82A-BB-000-TM-RA14	82A-EB-000-TM-RA14	82A-FB-000-TM-RA14	82A-GB-000-TM-RA14
Sub-base	Internal	82A-AB-EKA-TM-RA14	82A-BB-EKA-TM-RA14	82A-EB-EKA-TM-RA14	82A-FB-EKA-TM-RA14	82A-GB-EKA-TM-RA14
G1/4"	External	82A-AB-EKD-TM-RA14	82A-BB-EKD-TM-RA14	82A-EB-EKD-TM-RA14	82A-FB-EKD-TM-RA14	82A-GB-EKD-TM-RA14
Sub-base	Internal	82A-AB-FKA-TM-RA14	82A-BB-FKA-TM-RA14	82A-EB-FKA-TM-RA14	82A-FB-FKA-TM-RA14	82A-GB-FKA-TM-RA14
G3/8"	External	82A-AB-FKD-TM-RA14	82A-BB-FKD-TM-RA14	82A-EB-FKD-TM-RA14	82A-FB-FKD-TM-RA14	82A-GB-FKD-TM-RA14

OPTIONS

82A-AB-000-TM-RA14

— For dual pressure valves, replace A by C, B by D, E by M, F by L, G by H.

Manifold fastening kit : N-82005-01P.

TECHNICAL DATA

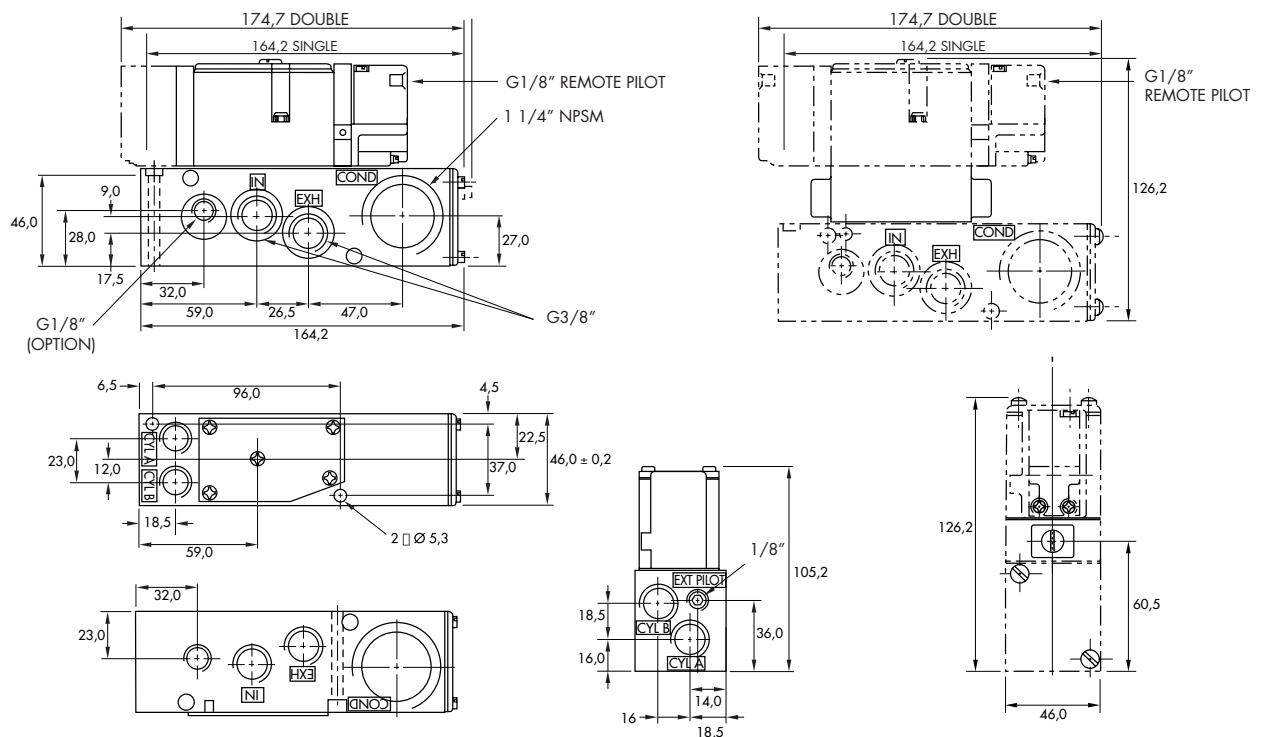
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/4" : 1300 NL/min, G3/8" : 1350 NL/min

Spare parts : • Remote air operated pilot : TM-RA14.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e 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
		ISO 2
		ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

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58

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700

900

82

6300

6500

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2700

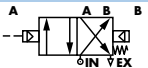
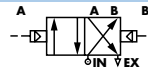
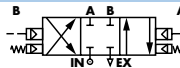
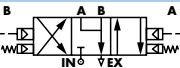
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
				
Valve less base	6312D-000-RA	6322D-000-RA	6332D-000-RA	6342D-000-RA
Sub-base G1/4"	6312D-171-RA	6322D-181-RA	6332D-181-RA	6342D-181-RA
Sub-base G3/8"	6312D-271-RA	6322D-281-RA	6332D-281-RA	6342D-281-RA
Sub-base G1/2"	6312D-371-RA	6322D-381-RA	6332D-381-RA	6342D-381-RA

OPTIONS

6312D-171-RA

- For bottom ports (excluding G1/2"), replace by 4.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2000 NI/min, G3/8" : 2600 NI/min, G1/2" : 3000 NI/min

Spare parts :

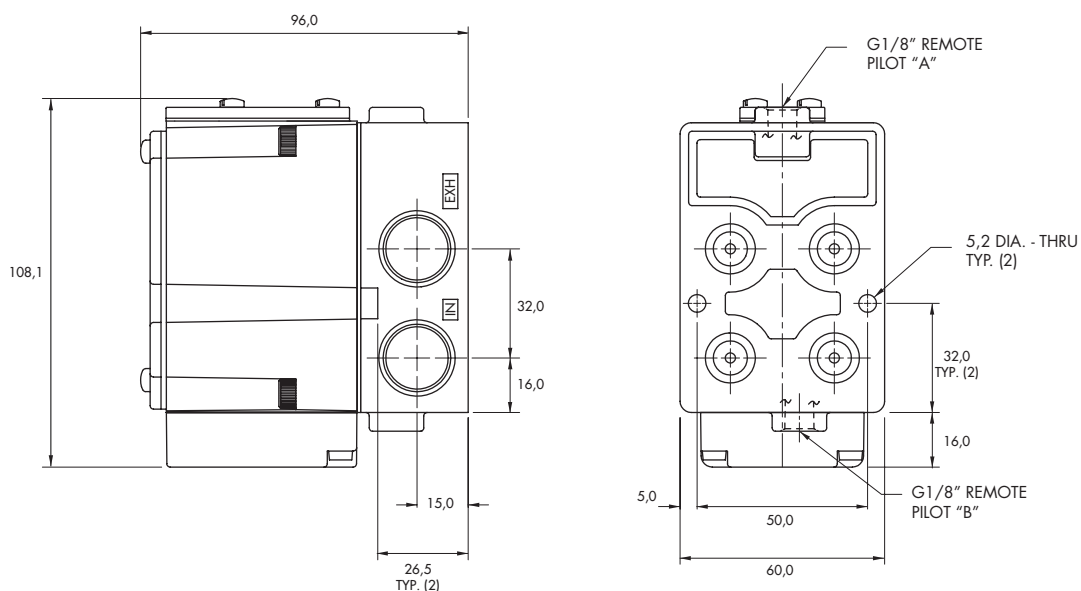
- Remote air operator (A side) : R-63004A. • Remote air operator (B side) : R-63005A.
- Seal between valve and base : 16298. • Mounting screw valve to base (x4) : 35303.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G1/4" - G3/8" - G1/2"	3000 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

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700

900

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6300

6500

6600

2700

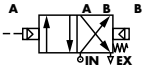
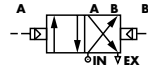
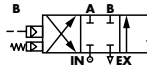
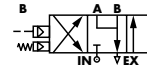
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
				
Valve less base	6312D-000-RA	6322D-000-RA	6332D-000-RA	6342D-000-RA
Sub-base G1/4"	6312D-471-RA	6322D-481-RA	6332D-481-RA	6342D-481-RA
Sub-base G3/8"	6312D-571-RA	6322D-581-RA	6332D-581-RA	6342D-581-RA
Sub-base G1/2"	6312D-671-RA	6322D-681-RA	6332D-681-RA	6342D-681-RA

OPTIONS

6312D-471-RA
 - For bottom cylinder ports, replace by 4.

Fastening kit : N-63002-01P

TECHNICAL DATA

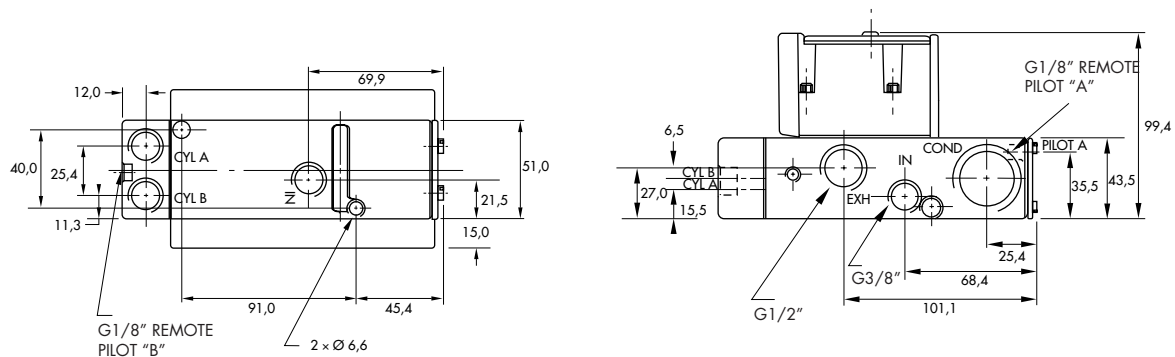
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/4" : 2000 NI/min, G3/8" : 2600 NI/min, G1/2" : 3000 NI/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e 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
		ISO 2
		ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

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700

900

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6500

6600

2700

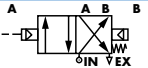
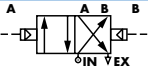
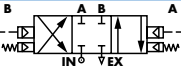
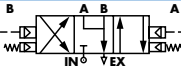
1800

ISO 1

ISO 2

ISO 3

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 less base	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
Sub-base G3/8"	6512B-171-RA	6522B-181-RA	6532B-181-RA	6542B-181-RA	6552B-181-RA
Sub-base G1/2"	6512B-271-RA	6522B-281-RA	6532B-281-RA	6542B-281-RA	6552B-281-RA
Sub-base G3/4"	6512B-371-RA	6522B-381-RA	6532B-381-RA	6542B-381-RA	6552B-381-RA

OPTIONS

6512B-171-RA

Dual pressure valves : replace by 4. (excluding G3/4" base)

TECHNICAL DATA

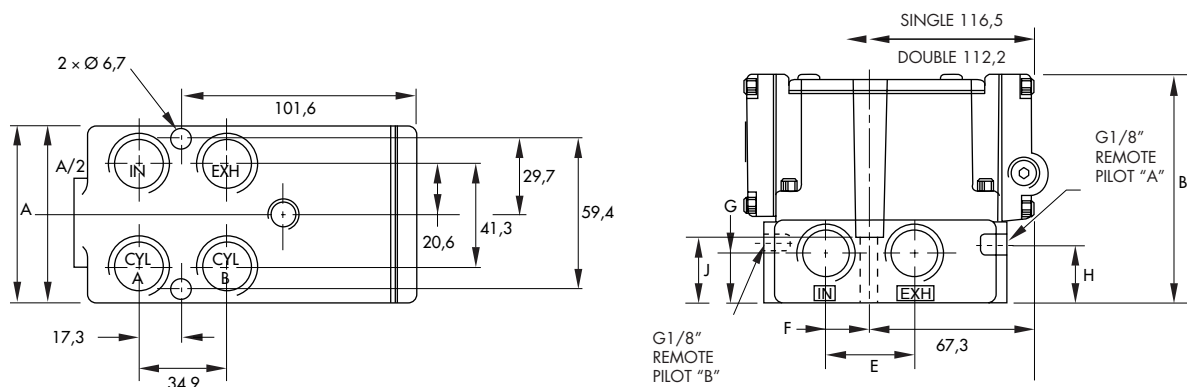
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



PORT SIZE	A	B	E	F	G	H	J
G3/8" & G1/2"	69.6	97.4	36.0	17.9	19.0	23.6	25.4
G3/4"	94.5	109.3	40.1	19.2	20.8	35.9	36.6

Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/8" - G1/2" - G3/4"	5100 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

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700

900

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6300

6500

6600

2700

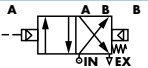
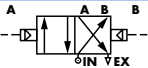
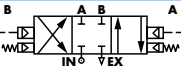
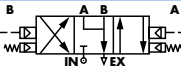
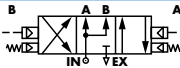
1800

ISO 1

ISO 2

ISO 3

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 less base	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
Sub-base G3/8"	6512B-471-RA	6522B-481-RA	6532B-481-RA	6542B-481-RA	6552B-481-RA
Sub-base G1/2"	6512B-571-RA	6522B-581-RA	6532B-581-RA	6542B-581-RA	6552B-581-RA
Sub-base G3/4"	6512B-671-RA	6522B-681-RA	6532B-681-RA	6542B-681-RA	6552B-681-RA

OPTIONS

6512B-471-RA

For dual pressure valves, replace by 4.

Fastening kit : N-65002-01P.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/8" : 4500 NI/min, G1/2" : 5000 NI/min, G3/4" : 5100 NI/min

Spare parts :

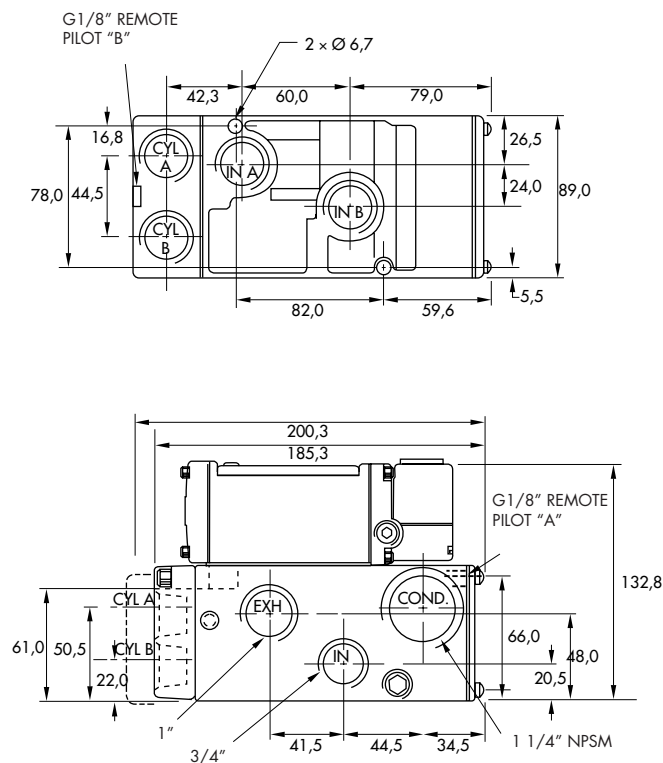
- Remote air operator : R-00008. • Seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e 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
		ISO 2
		ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/4" - G1"	9600 NI/min	sub-base	

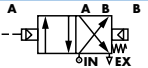
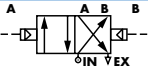
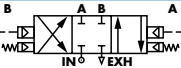
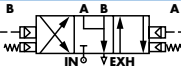
OPERATIONAL BENEFITS

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



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

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6612A-000-RA	6622A-000-RA	6632A-000-RA	6642A-000-RA	6652A-000-RA
Sub-base G3/4"	6612A-271-RA	6622A-281-RA	6632A-281-RA	6642A-281-RA	6652A-281-RA
Sub-base G1"	6612A-371-RA	6622A-381-RA	6632A-381-RA	6642A-381-RA	6652A-381-RA

OPTIONS

6612A-271-RA

Dual pressure valves : replace by 4.

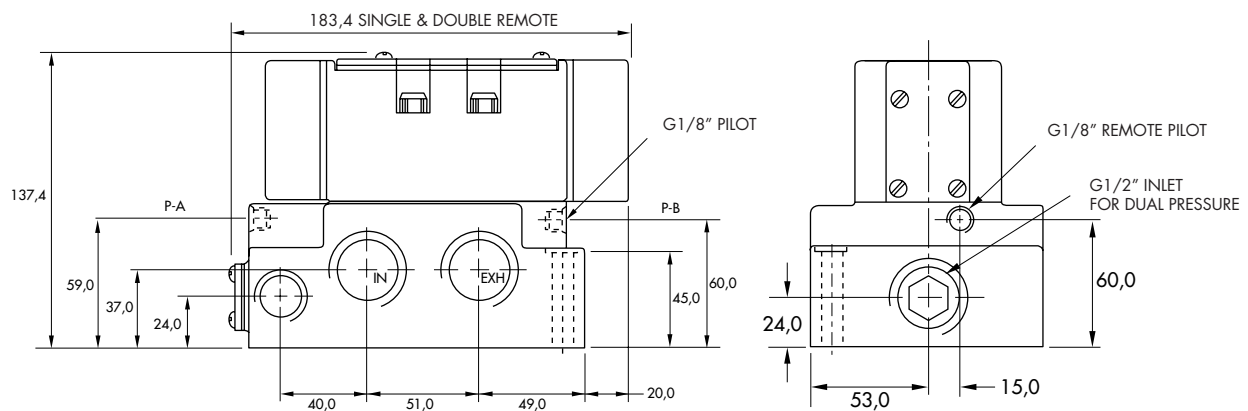
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min

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

DIMENSIONS

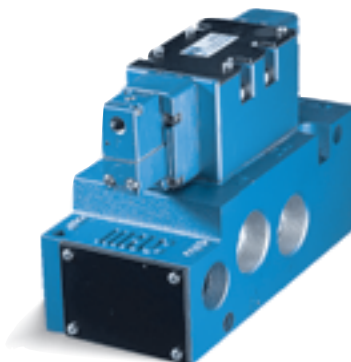
Dimensions shown are metric (mm)



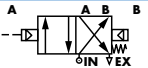
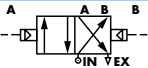
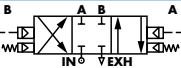
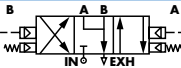
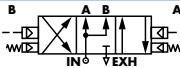
Function	Port size	Flow [Max]	Manifold mounting	Series
4/2 - 4/3	G3/4" - G1"	9600 NI/min	sub-base	

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6612A-000-PM-MO114	6622A-000-PM-MO114	6632A-000-PM-MO114	6642A-000-PM-MO114	6652A-000-PM-MO114
Sub-base G3/4"	6612A-471-PM-MO114	6622A-481-PM-MO114	6632A-481-PM-MO114	6642A-481-PM-MO114	6652A-481-PM-MO114
Sub-base G1"	6612A-571-PM-MO114	6622A-581-PM-MO114	6632A-581-PM-MO114	6642A-581-PM-MO114	6652A-581-PM-MO114

OPTIONS

6612A-XXX-PM-MO114

For dual pressure valves, replace by 4.

Fastening kit : N-66002-01P.

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

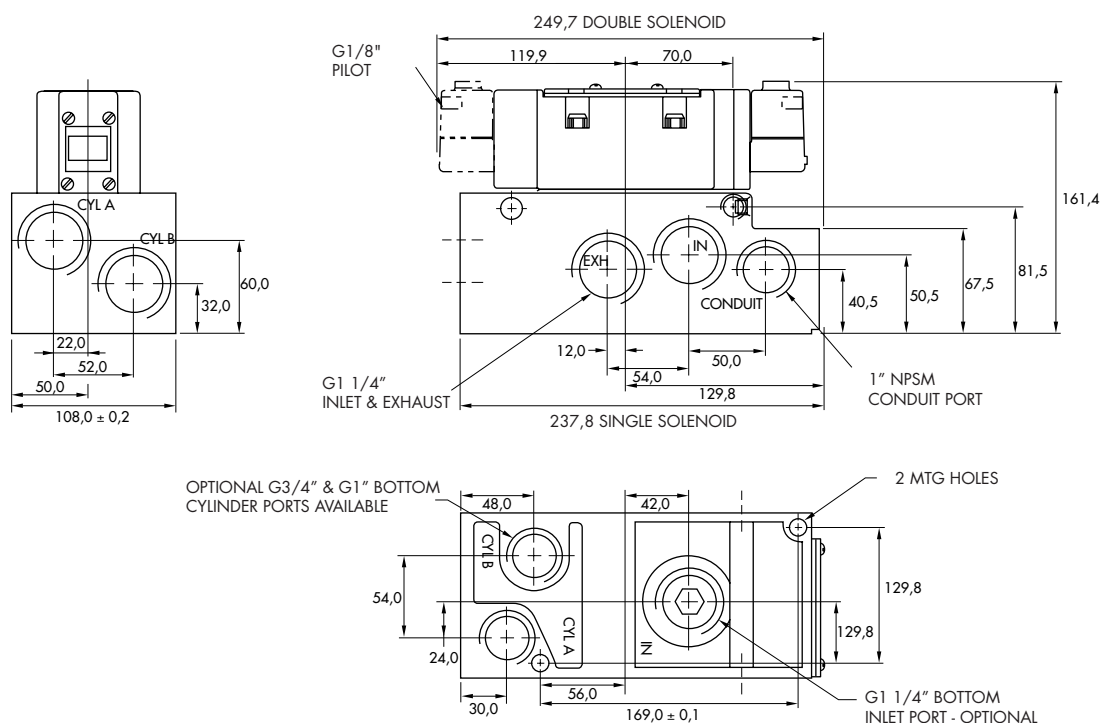
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/4" : 9000 NI/min, G1" : 9600 NI/min

Spare parts : • Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw valve to base (x4) : 35416.
• Tie-rod (x2) : 19789. • Remote air pilot : PME-MO114.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Series

sub-base	
----------	--

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

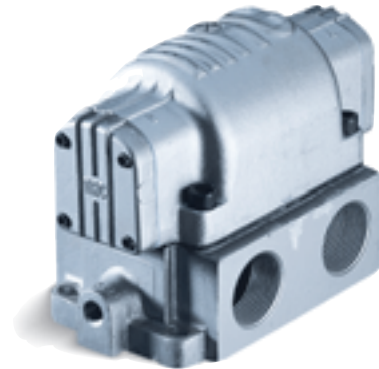
ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
4/2 - 4/3	G3/4" - G1" - G1 1/4" - G1 1/2"	15900 NI/min	sub-base	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

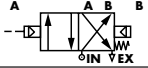
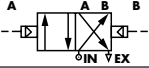
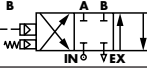
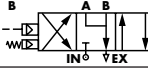
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
Valve less base		2701G-3	-	-	-
Sub-base G3/4"		2721G-3	-	-	-
Sub-base G1"	Internal	2731G-3	-	-	-
Sub-base G1 1/4"		2751G-3	-	-	-
Sub-base G1 1/2"		2761G-3	-	-	-
Valve less base		2701G-4	2703G-4	2707G-4	2708G-4
Sub-base G3/4"		2721G-4	2723G-4	2727G-4	2728G-4
Sub-base G1"	External	2731G-4	2733G-4	2737G-4	2738G-4
Sub-base G1 1/4"		2751G-4	2753G-4	2757G-4	2758G-4
Sub-base G1 1/2"		2761G-4	2763G-4	2767G-4	2768G-4

Note : Double operators are external pilot only
Single operators are either internal or external pilot.

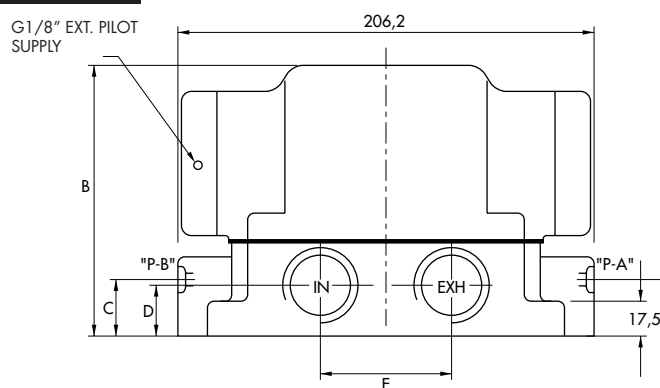
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G3/4" : 11500 NI/min, G1" : 13400 NI/min, G1 1/4" : 15400 NI/min, G1 1/2" : 15900 NI/min

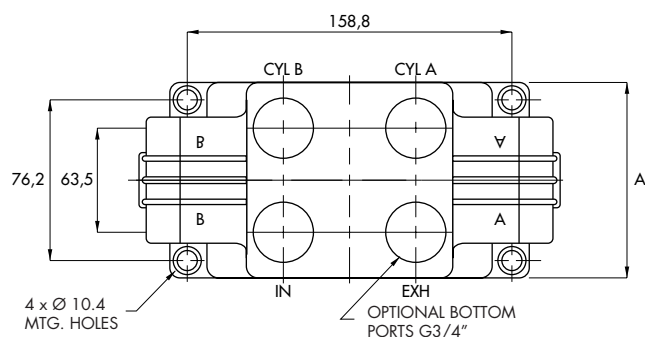
- Spare parts : • Remote air end plate : R-00016B. • Pressure seal between valve and base : 16083. • Mounting screw valve to base (x4) : 32214.
- Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



PORT SIZE	A	B	C	D	E
G3/4"	95.3	132.3	28.4	25.4	63.5
G1"					
G1 1/4"	114.3	148.3	23.9	30.2	76.2
G1 1/2"					69.9





R e m o t e a i r v a l v e s

Individual mounting

Series

Inline

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow (Max)	Individual mounting	Series
5/2 - 5/3	G1/4"	1400 NI/min	Inline	

OPERATIONAL BENEFITS

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



1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

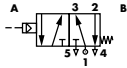
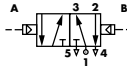
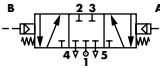
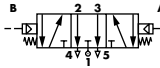
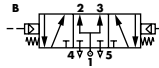
1800

ISO 1

ISO 2

ISO 3

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	180001-115-0003	180003-115-0003	180304-515-0304	180304-615-0304	180304-815-0304

Air pilot port : G1/8".

Options : Side pilot port : replace code 0003 by 0010 (2 positions valves only).

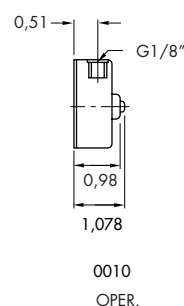
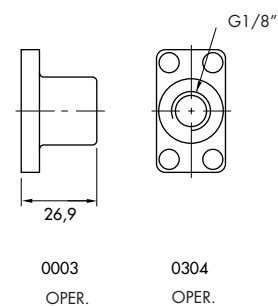
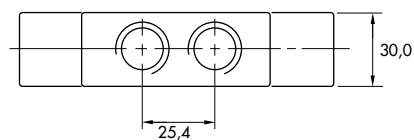
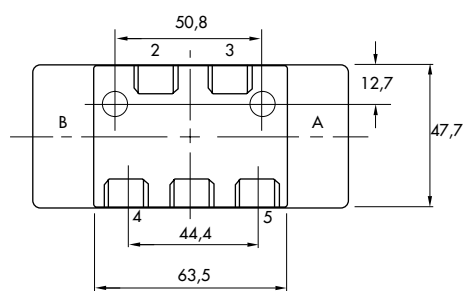
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 13.3 bar
Air signal pressure :	Single operator and 3 positions : 1.3 to 10 bar Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" - G3/8" : 1400 NI/min

- Spare parts : • Remote air operator (2 positions) : 180003. • Remote air operator (3 positions) : 180304.
- Options : • NPTF threads. • G3/8" ports (ports 1, 2 & 3 - MOD. 0358 required).

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e 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
		ISO 2
		ISO 3

Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
5/2 - 5/3	G1/4" - G3/8"	1600 NI/min	valve only	

OPERATIONAL BENEFITS

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



1100

55

56

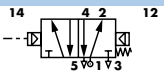
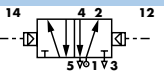
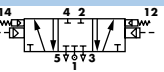
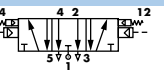
57

58

59

HOW TO ORDER

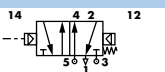
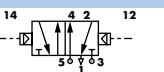
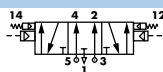
SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A1C-B111	—	—	—
External	MV-A1C-B121	MV-A1C-B221	MV-A1C-B322	MV-A1C-B321

700

900

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A1C-B131	—	—
Internal port 5	MV-A1C-B135	—	—
External	MV-A1C-B141	MV-A1C-B241	MV-A1C-B341

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Note : ISO valves are delivered w/o base. See page 261 for base code

TECHNICAL DATA

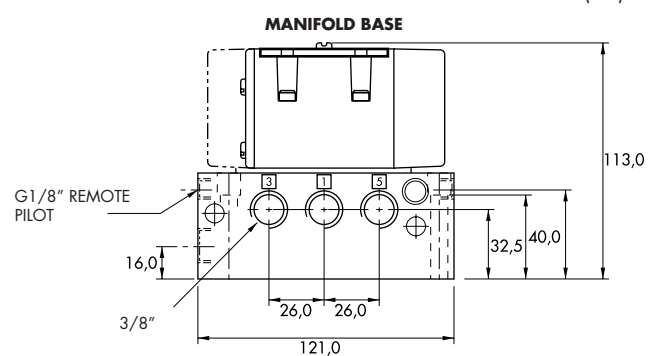
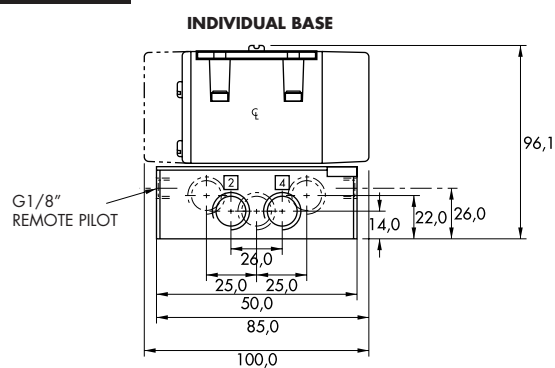
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.3 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$bar) :	G1/4" - G3/8" : 1600 NI/min

Spare parts :

- Remote air operator 2 positions : R-A1010. • Remote air operator 3 positions : R-A1005B.
- Pressure seal between valve and base : 16344. • Mounting screw body to base (x4) : 35304.

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e 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
		ISO 2
		ISO 3

Function	Port size	Flow [Max]	Individual mounting & Manifold mounting	Series
5/2 - 5/3	G3/8" - G1/2"	3000 NI/min	valve only	

OPERATIONAL BENEFITS

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



1100

55

56

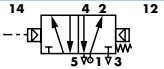
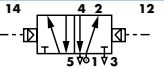
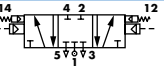
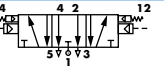
57

58

59

HOW TO ORDER

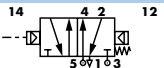
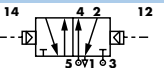
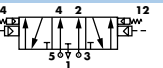
SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A2B-B111	—	—	—
External	MV-A2B-B121	MV-A2B-B221	MV-A2B-B322	MV-A2B-B321

700

900

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A2B-B131	—	—
Internal port 5	MV-A2B-B135	—	—
External	MV-A2B-B141	MV-A2B-B241	MV-A2B-B341

82

6300

6500

6600

Note : ISO valves are delivered w/o base. See page 263 for base code.

2700

1800

ISO 1

ISO 2

ISO 3

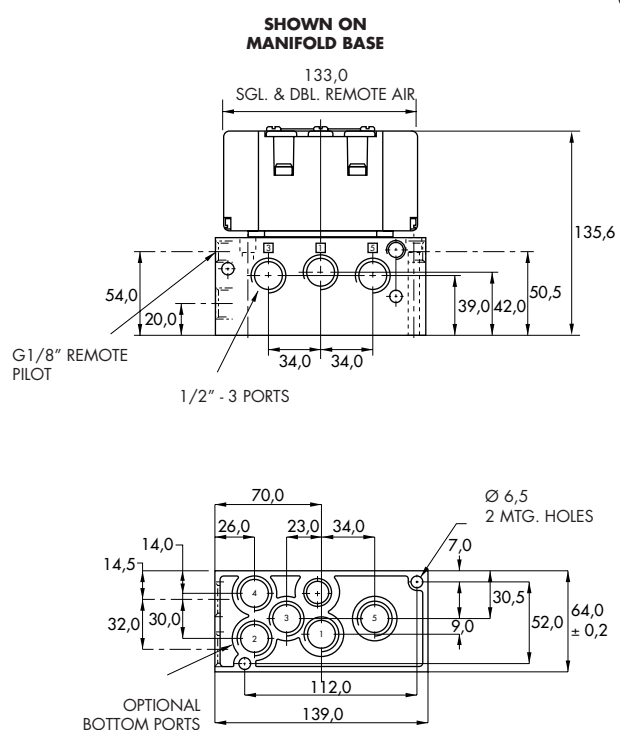
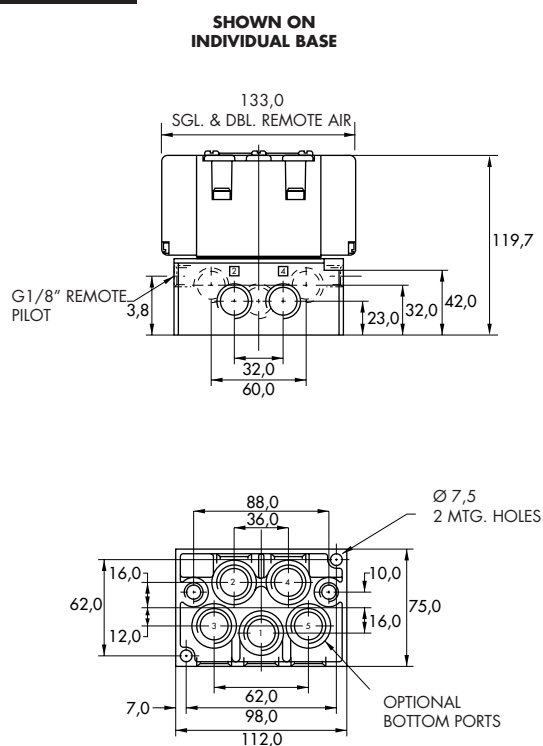
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$bar) :	G3/8" - G1/2" : 3000 NI/min

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

DIMENSIONS

Dimensions shown are metric (mm)





R e m o t e a i r v a l v e s

Individual mounting

Series

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

1100

55

56

57

58

59

700

900

82

6300

6500

6600

2700

1800

ISO 1

ISO 2

ISO 3

Function	Port size	Flow [Max]	Individual mounting	Series
5/2 - 5/3	G1/2" - G3/4"	6300 NI/min	valve only	

OPERATIONAL BENEFITS

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



1100

55

56

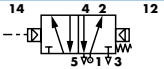
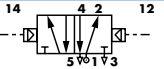
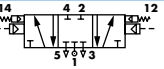
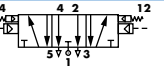
57

58

59

HOW TO ORDER

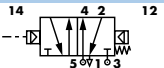
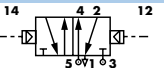
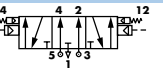
SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MVA3B-B111	—	—	—
External	MVA3B-B121	MVA3B-B221	MVA3B-B322	MVA3B-B321

700

900

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MVA3B-B131	—	—
Internal port 5	MVA3B-B135	—	—
External	MVA3B-B141	MVA3B-B241	MVA3B-B341

82

6300

6500

6600

Note : ISO valves are delivered w/o base. See page 265 for base code.

2700

1800

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

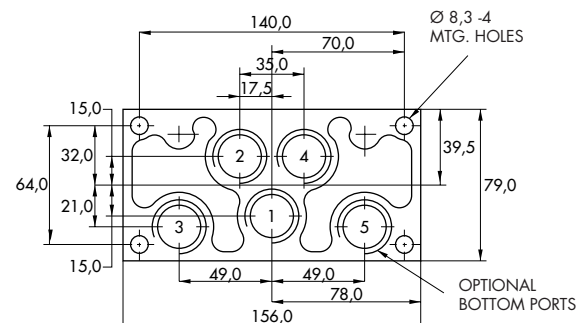
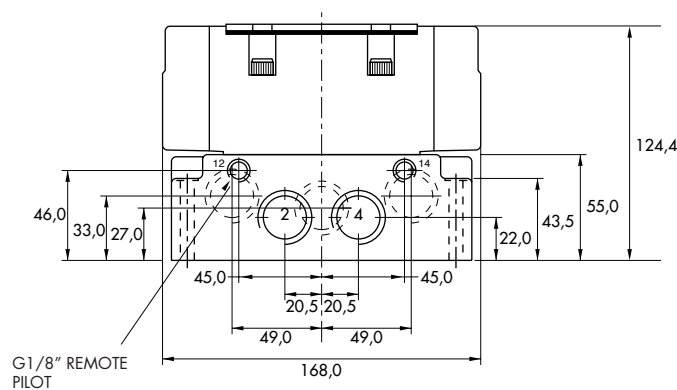
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar $\geq$ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 μ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, $\Delta P=1$ bar) :	G1/2" - G3/4" : 6300 NI/min

Spare parts :

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

DIMENSIONS

Dimensions shown are metric (mm)





Section 3 Mechanically and manually operated valves



M e c h a n i c a l l y a n d m a n u a l l y

Function	Port size	Flow [Max] NI/min
3/2 - 2/2	G1/8" - G1/4"	180
3/2 - 2/2	G1/8" - G1/4"	140
5/2 - 5/3	G1/4"	1350

o p e r a t e d v a l v e s

Individual mounting	Manifold mounting	Series
Inline	sub-base	
P. 257	P. 259	1100
P. 263		1800



Mechanically and manually operated valves

Individual mounting Series

Inline	
--------	--

Manifold mounting **1100**

sub-base	1800
----------	-------------

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

OPERATIONAL BENEFITS

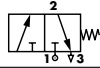
1. Short stroke with high flow.
2. Powerful return spring.



1100

1800

HOW TO ORDER

Port size	Universal valve	NC only valve
		
G1/8"	1116A- xxx	1166A- xxx
G1/4"	1117A- xxx	1167A- xxx

MECHANICAL OPERATOR >

xxx

Code	Description	Code	Description	Code	Description
011	Cam roller parallel to ports 1 & 2	023	Lever locking pull perpendicular to ports 1 & 2	031	Push button
012	Cam roller perpendicular to ports 1 & 2	024	Lever non-locking pull perpendicular to ports 1 & 2	032	Push button (panel mounting)
013	Lever cam perpendicular to ports 1 & 2	025	Lever locking push parallel to ports 1 & 2	033	Push button with guard
014	Lever cam parallel to ports 1 & 2	026	Lever non-locking push parallel to ports 1 & 2	036	Palm button
021	Lever locking push perpendicular to ports 1 & 2	027	Lever locking pull parallel to ports 1 & 2	037	Palm button (panel mounting)
022	Lever non-locking push perpendicular to ports 1 & 2	028	Lever non-locking pull parallel to ports 1 & 2	038	Palm button with guard

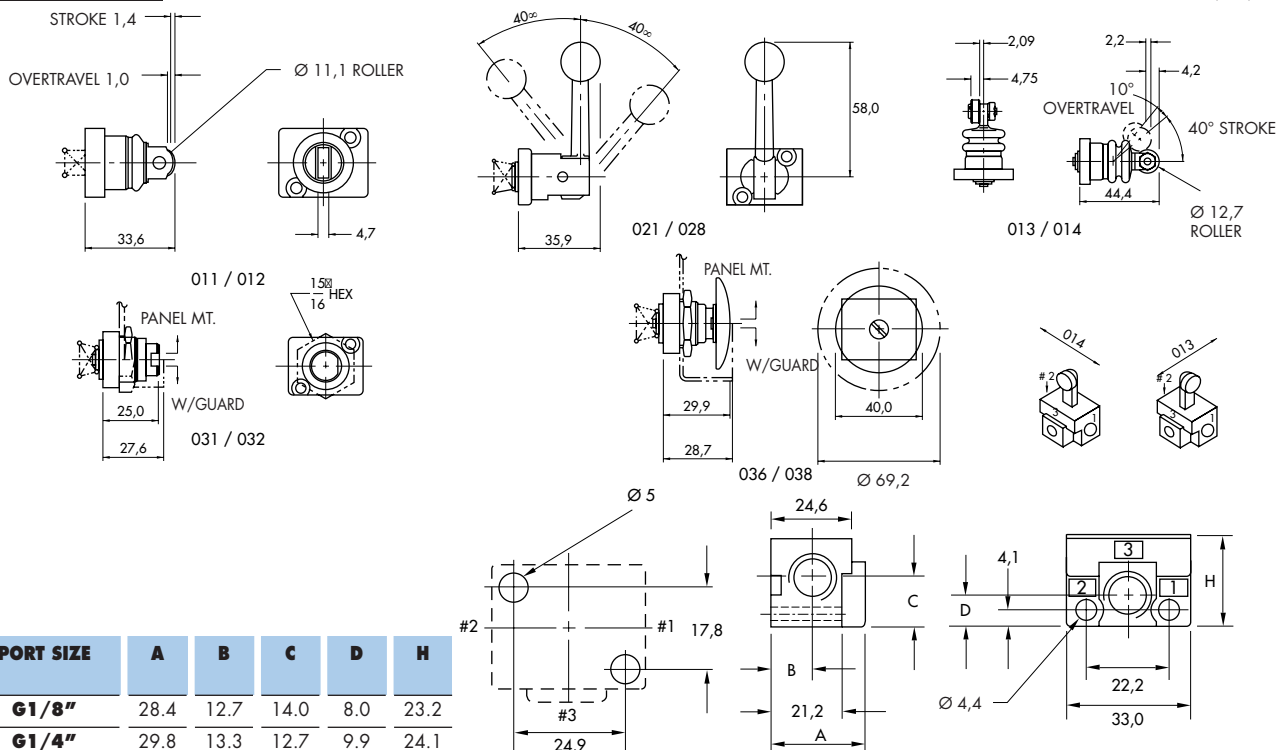
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" - G1/4" : 180 NI/min

- Spare parts : • Operator : 1100A-XXX (see codification).
- Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8"	140 NI/min	sub-base	

OPERATIONAL BENEFITS

1. Short stroke with high flow.
2. Powerful return spring.



1100

1800

HOW TO ORDER

Port size	Universal valve	NC only valve
		
Valve less base	1130A- xxx	1170A- xxx
Sub-base G1/8"	1136A- xxx	1176A- xxx

MECHANICAL OPERATOR >

xxx

Code	Description	Code	Description
025	Lever locking push parallel to ports 1 & 2 	031	Push button 
026	Lever non-locking push parallel to ports 1 & 2 	028	Lever non-locking pull parallel to ports 1 & 2 
027	Lever locking pull parallel to ports 1 & 2 		

End plate kit (Port size G1/4") : A2-5004-01P.

TECHNICAL DATA

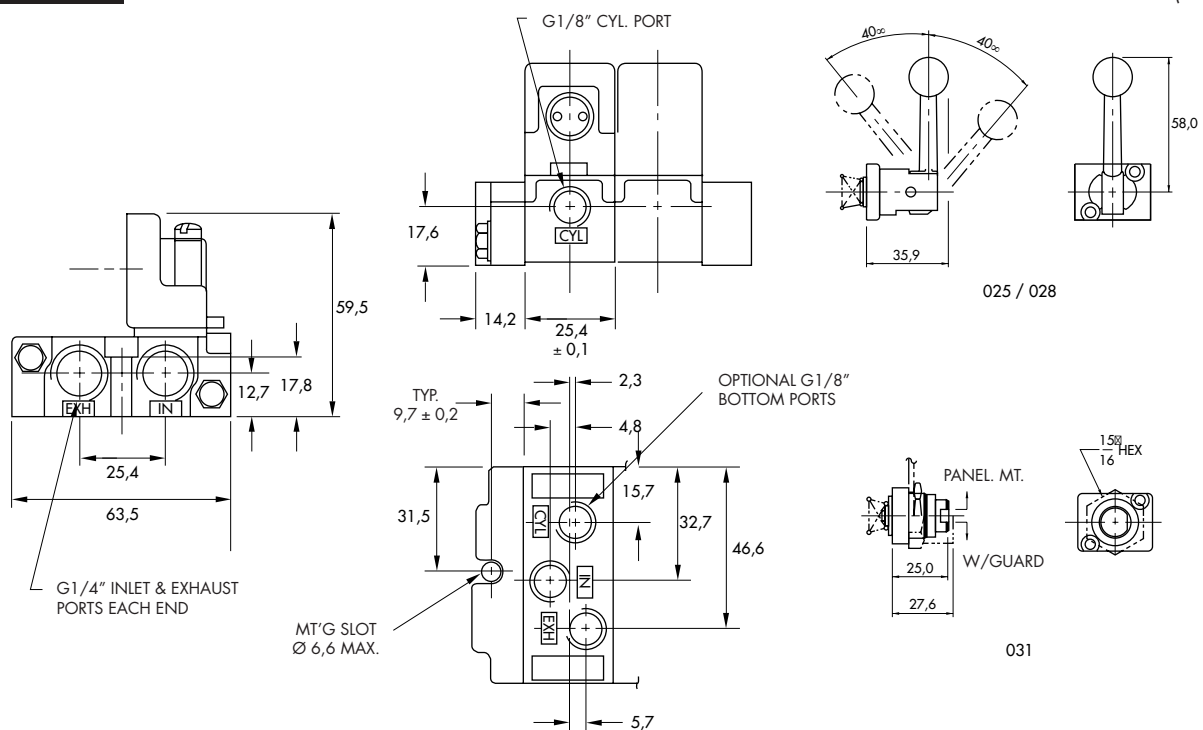
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 140 NI/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





Mechanically and manually operated valves

Individual mounting

Series

Inline

1100

1800

Function	Port size	Flow [Max]	Individual mounting	Series
5/2	G1/4"	1400 NI/min	Inline	

OPERATIONAL BENEFITS

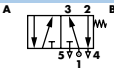
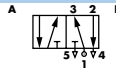
1. Short stroke with high flow.
2. Powerful return force.
3. Bonded spool with minimum friction, shifting in a glass-like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.

1100

1800



HOW TO ORDER

Port size	Single operator	Double operator
		
G1/4"	180001-115-xxxx	18xxxx-115-xxxx

MECHANICAL OPERATOR >

XXXX

Code	Description	Code	Description	Code	Description
0111	Cam roller parallel to ports 2 & 3	0024	Lever non-locking pull perpendicular to body	0033	Push button with guard
0112	Cam roller perpendicular to ports 2 & 3	0025	Lever locking push parallel to body	0034	Push Pull
0013	Lever cam perpendicular to ports 2 & 3	0026	Lever non-locking push parallel to body	0035	Push Pull (panel mounting)
0014	Lever cam parallel to ports 2 & 3	0027	Lever locking pull parallel to body	0036	Palm button
0021	Lever locking push perpendicular to body	0028	Lever non-locking pull parallel to body	0037	Palm button (panel mounting)
0022	Lever non-locking push perpendicular to body	0031	Push button	0038	Palm button with guard
0023	Lever locking pull perpendicular to body	0032	Push button (panel mounting)	0039	Push Pull palm button

OPTIONS

002X

Replace 0 by 2 for lever operator with boot (see photo)

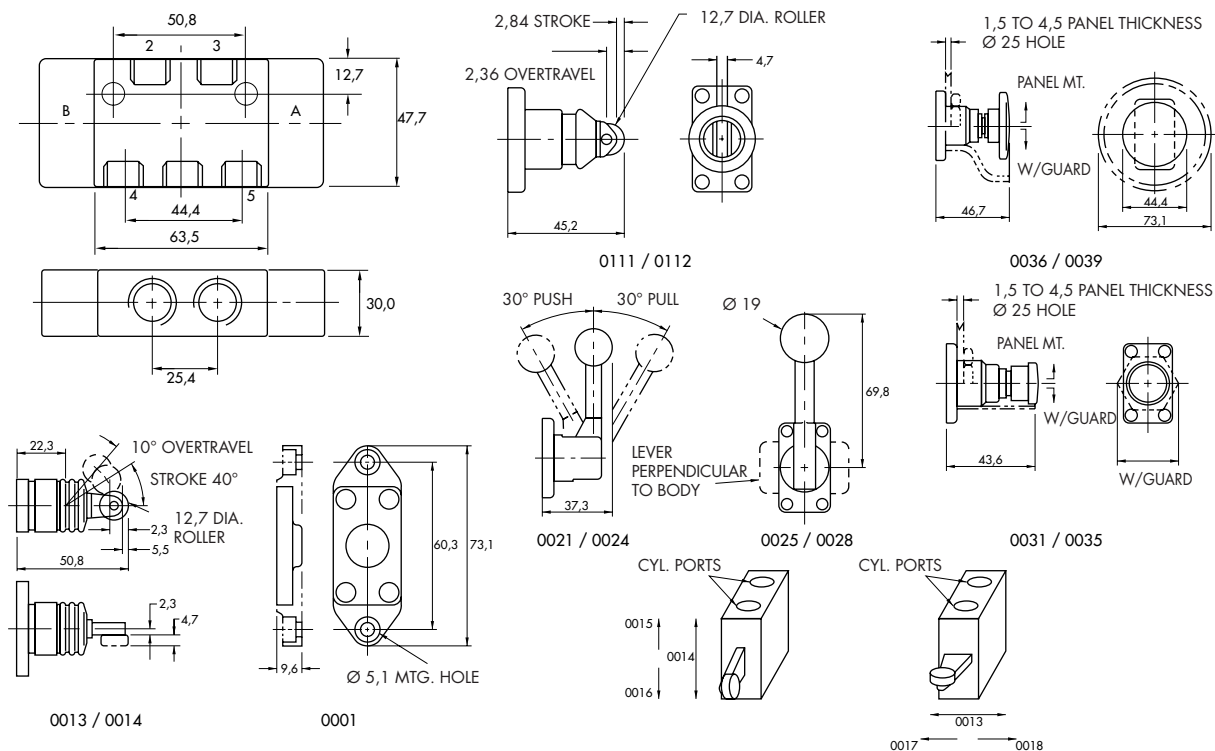
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 13.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 NL/min

- Spare parts : • Operator : 18XXXX (see codification).
- Options : • NPTF threads. • G3/8" ports (ports 1,2 & 3 - MOD. 0358 required).

DIMENSIONS

Dimensions shown are metric (mm)





Section 4 Bases according to ISO 5599



Bases according to ISO 5599

			Series
ISO 1	ISO 2	ISO 3	
P. 269			ISO 1
	P. 271		ISO 2
		P. 273	ISO 3

ISO 1

ISO 2

ISO 3



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/4"	MB-A1C-121	MB-A1C-123	MB-A1C-122	MB-A1C-124
G3/8"	MB-A1C-131	MB-A1C-133	MB-A1C-132	MB-A1C-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/4"	HB-A1A-A	HB-A1A-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/4"	MM-A1C-121	MM-A1C-123	MM-A1C-122	MM-A1C-124
G3/8"	MM-A1C-131	MM-A1C-133	MM-A1C-132	MM-A1C-134

Manifold fastening kit : N-63002-01.

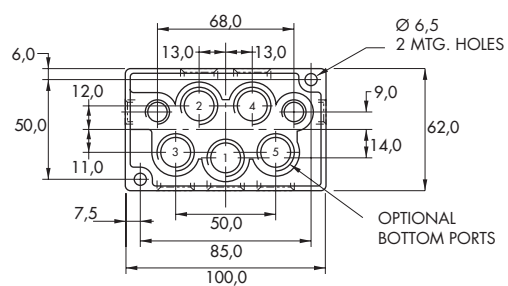
MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G1/4"	HM-A1A-C

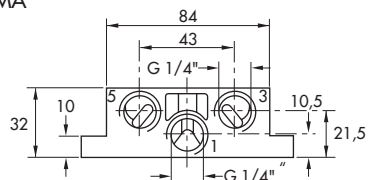
End plate kit : HM-A1A-D.

Dimensions shown are metric (mm)

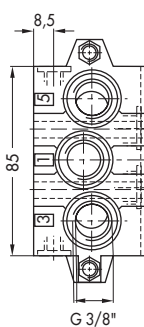
DIN 5599/1



VDMA

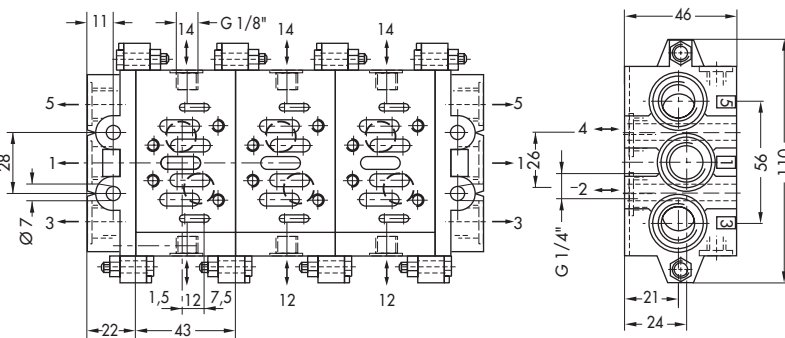
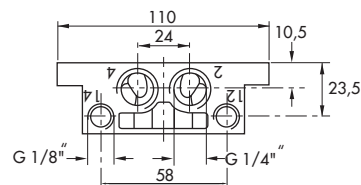
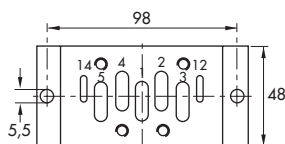
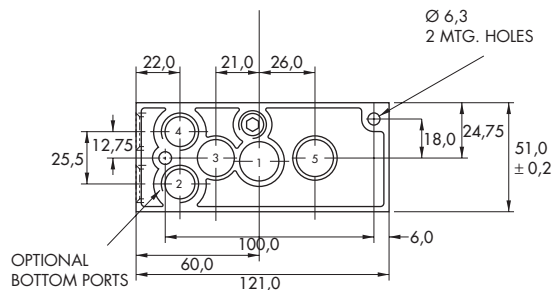
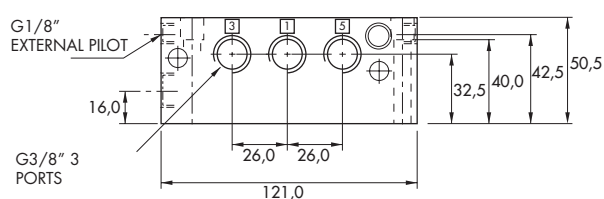


Individual



Manifold

Manifold



ISO 1

ISO 2

ISO 3



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G3/8"	MB-A2B-121	MB-A2B-123	MB-A2B-122	MB-A2B-124
G1/2"	MB-A2B-131	MB-A2B-133	MB-A2B-132	MB-A2B-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G3/8"	HB-A2B-A	HB-A2B-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G3/8"	MM-A2B-121	MM-A2B-123	MM-A2B-122	MM-A2B-124
G1/2"	MM-A2B-131	MM-A2B-133	MM-A2B-132	MM-A2B-134

Manifold fastening kit : N-63002-01.

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G3/8"	HM-A2B-C

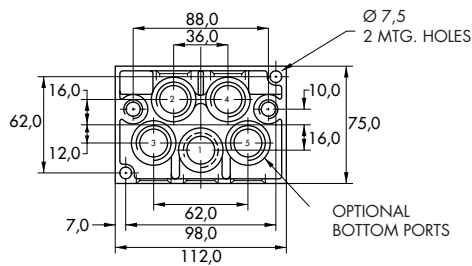
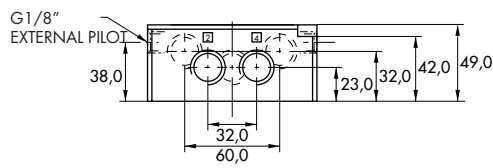
End plate kit : HM-A2B-D.

DIMENSIONS

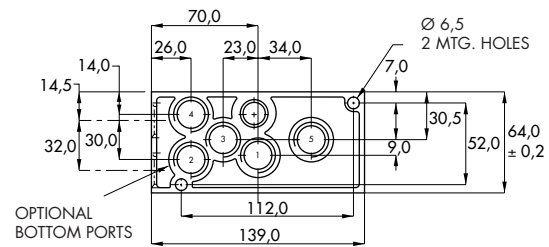
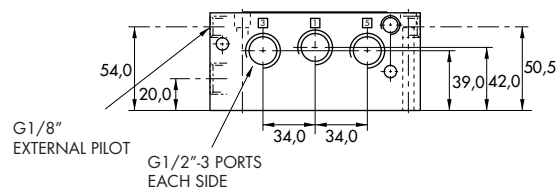
Dimensions shown are metric (mm)

Individual

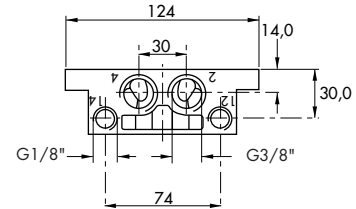
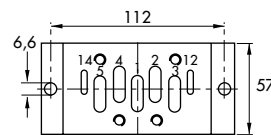
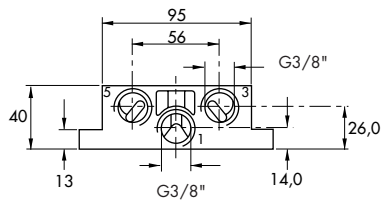
DIN 5599/1



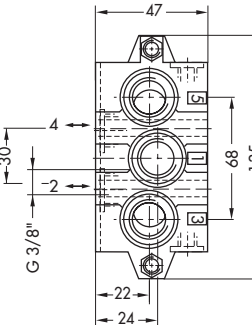
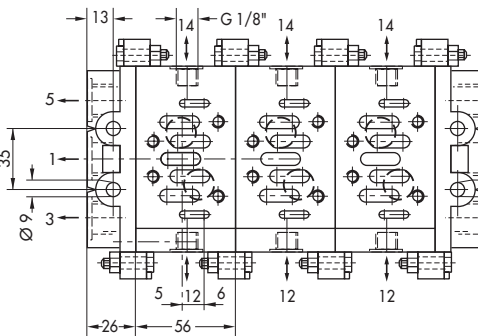
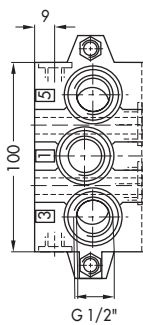
Manifold



VDMA



Individual



Manifold

ISO 1

ISO 2

ISO 3



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/2"	MB-A3B-121	MB-A3B-123	MB-A3B-122	MB-A3B-124
G3/4"	MB-A3B-131	MB-A3B-133	MB-A3B-132	MB-A3B-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/2"	HB-A3B-A	HB-A3B-B

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G1/2"	HM-A3B-C

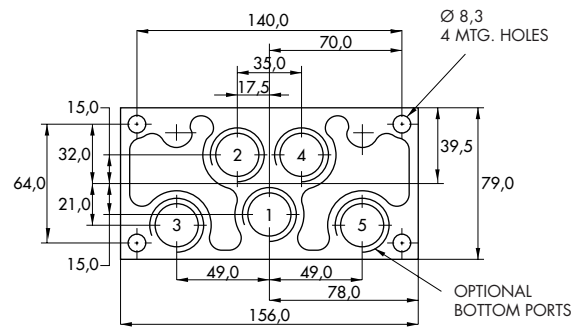
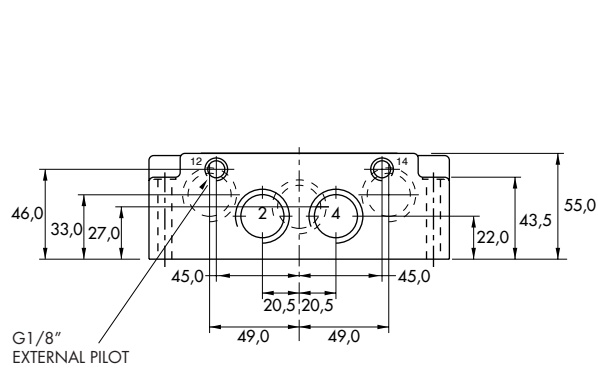
End plate kit : HM-A3B-D.

DIMENSIONS

Dimensions shown are metric (mm)

Individual

ISO DIN 5599/1

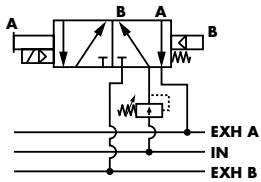




Section 5 Pressure regulators

Manual adjust

Single
regulator
Single
pressure

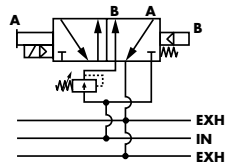


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P. 287

Single
regulator
Dual pressure

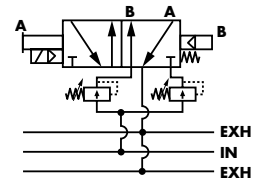


P. 279

P. 283

P. 287

Dual regulator
Dual pressure

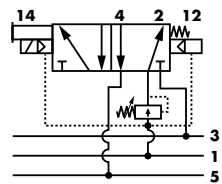


P. 279

P. 283

P. 287

Single
regulator
Single
pressure

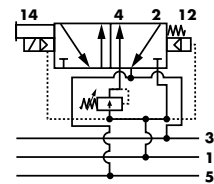


P. 291

P. 295

P. 299

Single
regulator
Dual pressure

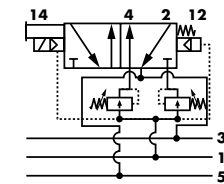


P. 291

P. 295

P. 299

Dual regulator
Dual pressure



P. 291

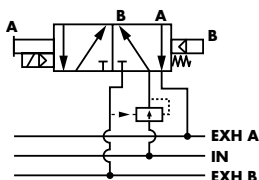
P. 295

P. 299

Air adjust

Series

Single
regulator
Single
pressure

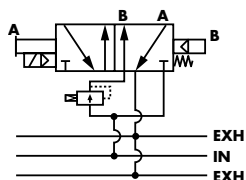


P. 281

P. 285

P. 289

Single
regulator
Dual pressure

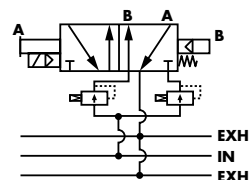


P. 281

P. 285

P. 289

Dual regulator
Dual pressure



P. 281

P. 285

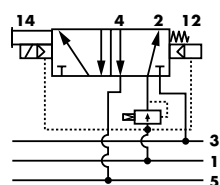
P. 289

PR82A

PR63D

PR65C

Single
regulator
Single
pressure

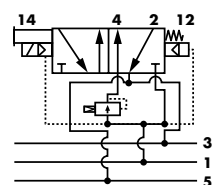


P. 293

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P. 301

Single
regulator
Dual pressure

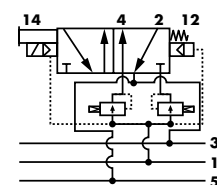


P. 293

P. 297

P. 301

Dual regulator
Dual pressure



P. 293

P. 297

P. 301

PRA1A

PRA2D

PRA3C

Sandwich pressure regulator with manual adjust locking knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-GADA	PR82A-GCDA	PR82A-GBDA	PR82A-GDDA
Gauge parallel to regulator	PR82A-GACA	PR82A-GCCA	PR82A-GBCA	PR82A-GDCA
Gauge perpendicular to regulator	PR82A-GABA	PR82A-GCBA	PR82A-GBBA	PR82A-GDBA

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-HADA	PR82A-HCDA	PR82A-HBDA	PR82A-HDDA
Gauge parallel to regulator	PR82A-HACA	PR82A-HCCA	PR82A-HBCA	PR82A-HDCA
Gauge perpendicular to regulator	PR82A-HABA	PR82A-HCBA	PR82A-HBBA	PR82A-HDBA

PRA1A

PRA2D

PRA3C

Note : regulating range for above models is 0-8 bar. For other ranges see technical data page.

* To be used with dual pressure valves.

ADJUSTMENT OPTIONS

PR82A-xxxx

- Replace by A for "plug-in" with slotted stem adjustment.
- Replace by B for "non plug-in" with slotted stem adjustment.
- Replace by K for "plug-in" with locking slotted stem adjustment.
- Replace by L for "non plug-in" with locking slotted stem adjustment.

** SELECTOR OPTIONS

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
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1080 NI/min

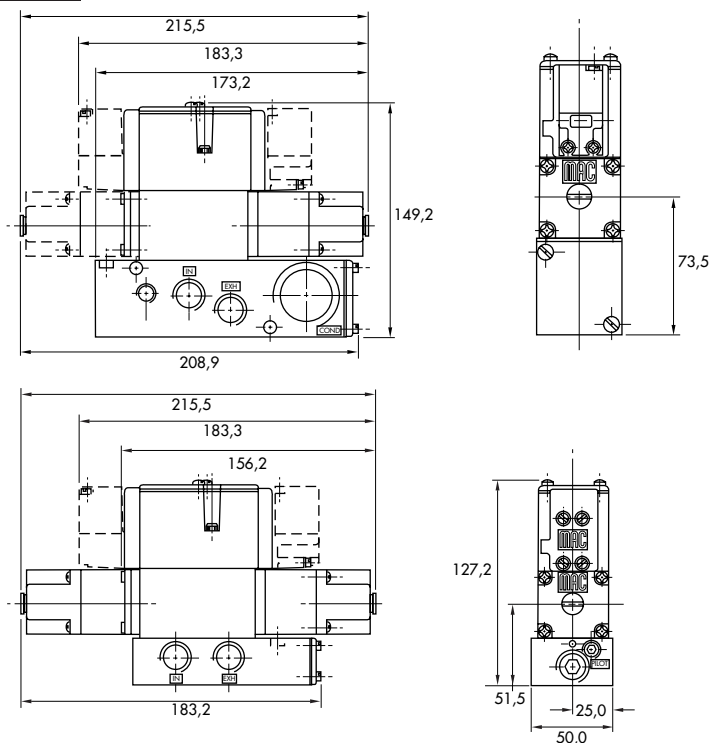
- Spare parts :
- Pressure regulator (less sandwich block) : PR82A-J0AA (KNOB), PR82A-C0AA (SLOTTED STEM), PR82A-M0AA (LOCKING SLOTTED STEM).
 - Gauges : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)
N-82016-03 (0-5.3 bar perpendicular)
N-82016-04 (0-5.3 bar parallel)
N-82016-05 (0-2 bar perpendicular)
N-82016-06 (0-2 bar parallel)

Regulating range options :

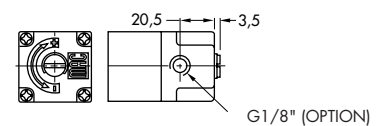
PR82A-XXXXA	Replace by B	- 0 to 5.3 bar
	Replace by C	- 0 to 2 bar
	Replace by D	- 0 to 8 bar on "A" end - 0 to 5.3 bar on "B" end
	Replace by E	- 0 to 8 bar on "B" end - 0 to 5.3 bar on "A" end
	Replace by F	- 0 to 8 bar on "A" end - 0 to 2 bar on "B" end
	Replace by G	- 0 to 8 bar on "B" end - 0 to 2 bar on "A" end
	Replace by H	- 0 to 5.3 bar on "A" end - 0 to 2 bar on "B" end
	Replace by J	- 0 to 5.3 bar on "B" end - 0 to 2 bar on "A" end

DIMENSIONS

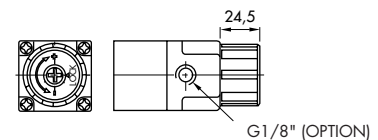
Dimensions shown are metric (mm)



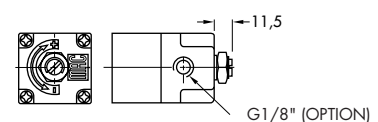
SLOTTED STEM



LOCKING KNOB



LOCKING SLOTTED STEM



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-DADA	PR82A-DCDA	PR82A-DBDA	PR82A-DDDA
Gauge parallel to regulator	PR82A-DACA	PR82A-DCCA	PR82A-DBCA	PR82A-DDCA
Gauge perpendicular to regulator	PR82A-DABA	PR82A-DCBA	PR82A-DBBA	PR82A-DDBA

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port A *	Dual pressure Regulator B end Regulated pressure to port B *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR82A-EADA	PR82A-ECDA	PR82A-EBDA	PR82A-EDDA
Gauge parallel to regulator	PR82A-EACA	PR82A-ECCA	PR82A-EBCA	PR82A-EDCA
Gauge perpendicular to regulator	PR82A-EABA	PR82A-ECBA	PR82A-EBBA	PR82A-EDBA

* To be used with dual pressure valves.

PRA1A

PRA2D

PRA3C

TECHNICAL DATA

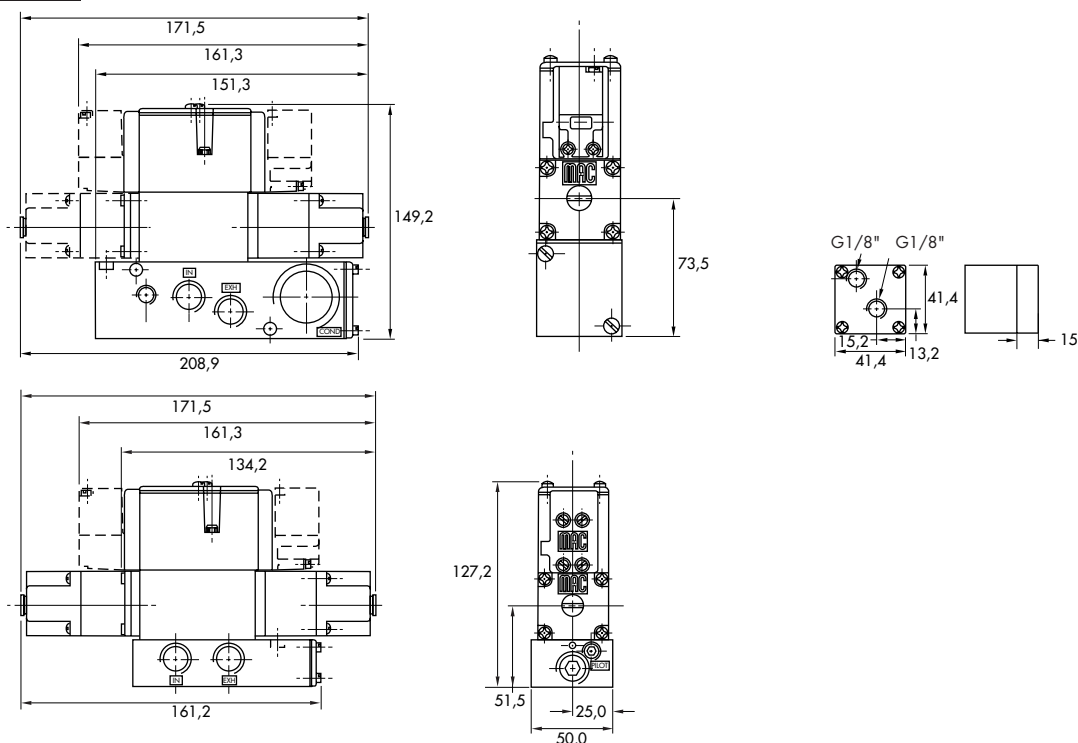
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1080 NI/min

Spare parts :

- Pressure regulator (less sandwich block) : PR82A-F0AA.
- Gauges : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-22AA	PR63D-21AA	PR63D-24AA	PR63D-23AA	PR63D-25AA
Glycerine filled gauge on regulator(s)	PR63D-22BA	PR63D-21BA	PR63D-24BA	PR63D-23BA	PR63D-25DA
Glycerine filled gauge opposite to regulator	PR63D-22CA	PR63D-21CA	PR63D-24CA	PR63D-23CA	—
Non-filled gauge on regulator(s)	PR63D-22FA	PR63D-21FA	PR63D-24FA	PR63D-23FA	PR63D-25HA
Non-filled gauge opposite to regulator	PR63D-22GA	PR63D-21GA	PR63D-24GA	PR63D-23GA	—

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

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

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

Note : regulating range for above models is 0-10 bar.
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.

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2400 NI/min

Spare parts :

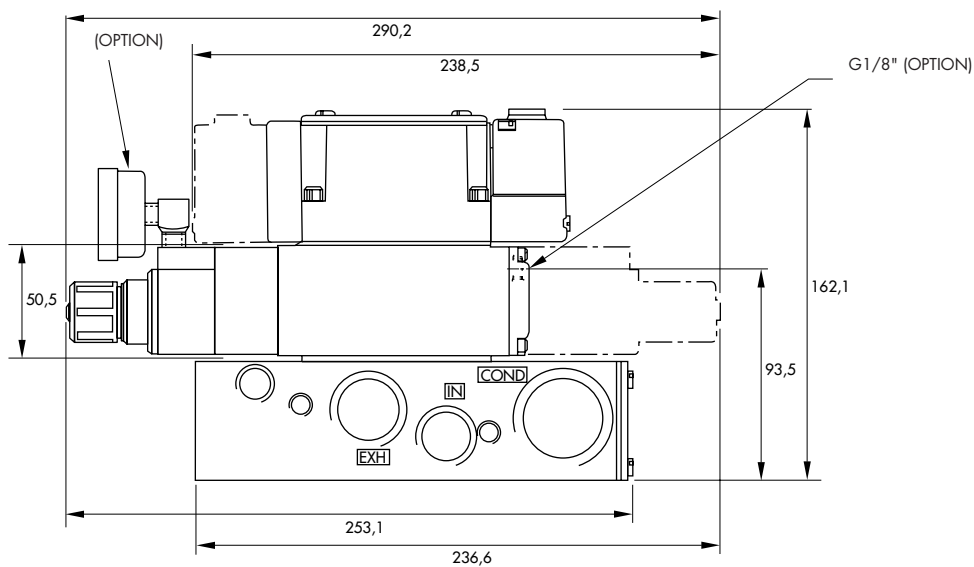
- Pressure regulator (less sandwich block) : PR63D-41AA (KNOB), PR63D-D1AA (SLOTTED STEM), PR63D-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PR63D-XXXA

Replace by B	- 0 to 6.7 bar
Replace by C	- 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B *	Dual pressure Regulator B end Regulated pressure to port A *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR63D-2BAA	PR63D-2AAA	PR63D-2DAA	PR63D-2CAA	PR63D-2EAA
Glycerine filled gauge on regulator(s)	PR63D-2BBA	PR63D-2ABA	PR63D-2DBA	PR63D-2CBA	PR63D-2EDA
Glycerine filled gauge opposite to regulator	PR63D-2BCA	PR63D-2ACA	PR63D-2DCA	PR63D-2CCA	—
Non-filled gauge on regulator(s)	PR63D-2BFA	PR63D-2AFA	PR63D-2DFA	PR63D-2CFA	PR63D-2EHA
Non-filled gauge opposite to regulator	PR63D-2BGA	PR63D-2AGA	PR63D-2DGA	PR63D-2CGA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B *	Dual pressure Regulator B end Regulated pressure to port A *	Dual pressure Dual regulator Two regulated pressures to ports A and B *
No gauge	PR63D-3BAA	PR63D-3AAA	PR63D-3DAA	PR63D-3CAA	PR63D-3EAA
Glycerine filled gauge on regulator(s)	PR63D-3BBA	PR63D-3ABA	PR63D-3DBA	PR63D-3CBA	PR63D-3EDA
Glycerine filled gauge opposite to regulator	PR63D-3BCA	PR63D-3ACA	PR63D-3DCA	PR63D-3CCA	—
Non-filled gauge on regulator(s)	PR63D-3BFA	PR63D-3AFA	PR63D-3DFA	PR63D-3CFA	PR63D-3EHA
Non-filled gauge opposite to regulator	PR63D-3BGA	PR63D-3AGA	PR63D-3DGA	PR63D-3CGA	—

* To be used with dual pressure valves (available only on manifolds).

PLUG-IN OPTIONS

PR63D-xxxx

— Replace by 1 for single solenoid plug-in.

PRA1A

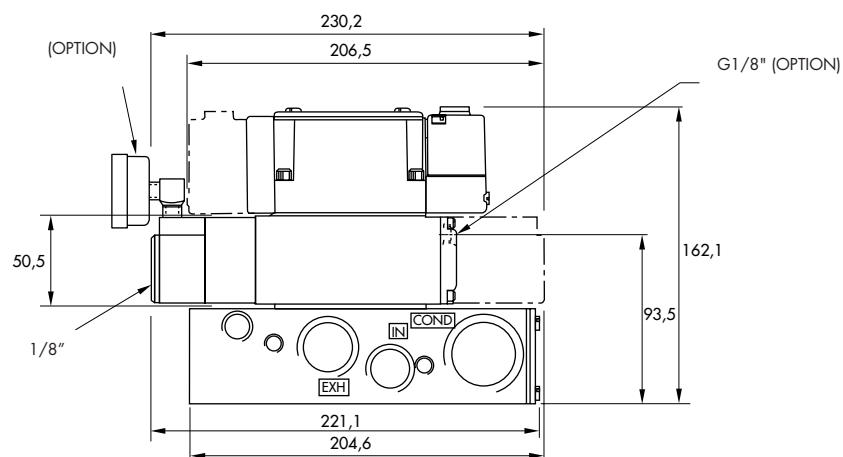
PRA2D

PRA3C

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	2400 NI/min

- Spare parts :
- Pressure regulator (less sandwich block) : PR63D-4AAA.
 - Gauges : • Glycerine filled : N-62015-01
 - Non filled : N-62016-01

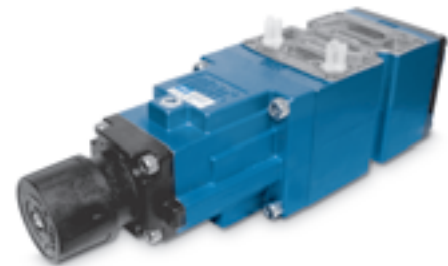
DIMENSIONS Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-22AA	PR65C-21AA	PR65C-24AA	PR65C-23AA	PR65C-25AA
Glycerine filled gauge on regulator(s)	PR65C-22BA	PR65C-21BA	PR65C-24BA	PR65C-23BA	PR65C-25DA
Glycerine filled gauge opposite to regulator	PR65C-22CA	PR65C-21CA	PR65C-24CA	PR65C-23CA	—
Non-filled gauge on regulator(s)	PR65C-22FA	PR65C-21FA	PR65C-24FA	PR65C-23FA	PR65C-25HA
Non-filled gauge opposite to regulator	PR65C-22GA	PR65C-21GA	PR65C-24GA	PR65C-23GA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-32AA	PR65C-31AA	PR65C-34AA	PR65C-33AA	PR65C-35AA
Glycerine filled gauge on regulator(s)	PR65C-32BA	PR65C-31BA	PR65C-34BA	PR65C-33BA	PR65C-35DA
Glycerine filled gauge opposite to regulator	PR65C-32CA	PR65C-31CA	PR65C-34CA	PR65C-33CA	—
Non-filled gauge on regulator(s)	PR65C-32FA	PR65C-31FA	PR65C-34FA	PR65C-33FA	PR65C-35HA
Non-filled gauge opposite to regulator	PR65C-32GA	PR65C-31GA	PR65C-34GA	PR65C-33GA	—

Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.

PLUG-IN OPTIONS

PR65C-xxxx

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

ADJUSTMENT OPTIONS

PR65C-xxxx

- Replace by A for slotted stem adjustment for single solenoid plug-in.
- Replace by B for slotted stem adjustment for double solenoid plug-in.
- Replace by C for slotted stem adjustment for non plug-in valves.
- Replace by E for slotted stem with locknut for single solenoid plug-in.
- Replace by F for slotted stem with locknut for double solenoid plug-in.
- Replace by G for slotted stem with locknut for non plug-in valves.

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	4000 NI/min

Spare parts :

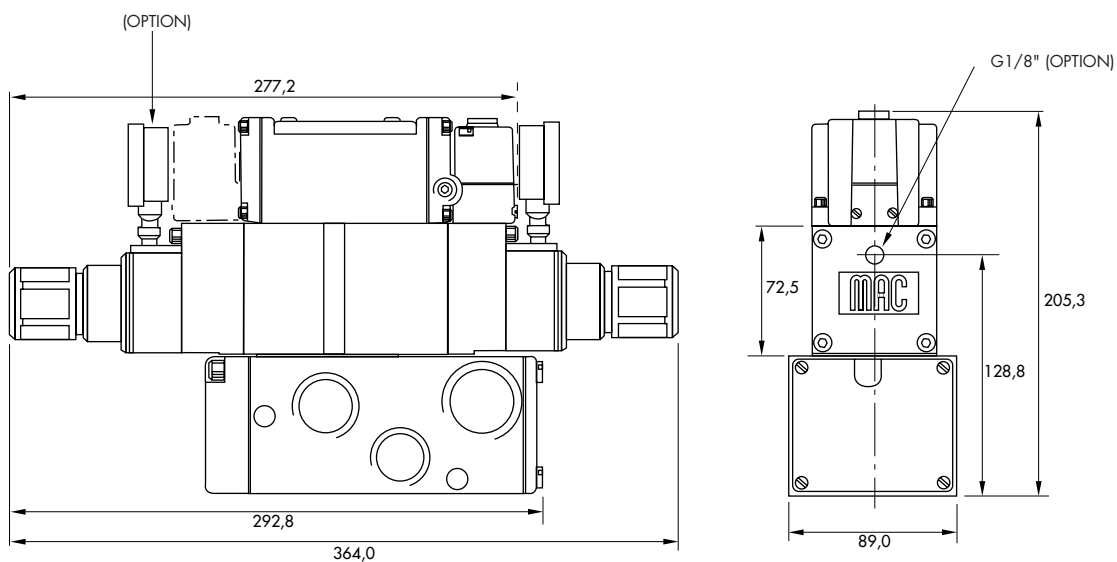
- Pressure regulator (less sandwich block) : PR65C-41AA (KNOB), PR65C-D1AA (SLOTTED STEM), PR65C-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PR65C-XXXX

Replace by B	- 0 to 6.7 bar
Replace by C	- 0 to 3 bar

DIMENSIONS

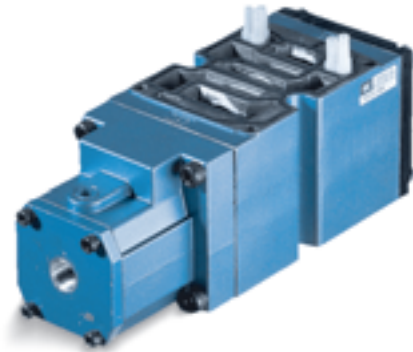
Dimensions shown are metric (mm)



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A

PR63D

PR65C

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-2BAA	PR65C-2AAA	PR65C-2DAA	PR65C-2CAA	PR65C-2EAA
Glycerine filled gauge on regulator(s)	PR65C-2BBA	PR65C-2ABA	PR65C-2DBA	PR65C-2CBA	PR65C-2EDA
Glycerine filled gauge opposite to regulator	PR65C-2BCA	PR65C-2ACA	PR65C-2DCA	PR65C-2CCA	—
Non-filled gauge on regulator(s)	PR65C-2BFA	PR65C-2AFA	PR65C-2DFA	PR65C-2CFA	PR65C-2EHA
Non-filled gauge opposite to regulator	PR65C-2BGA	PR65C-2AGA	PR65C-2DGA	PR65C-2CGA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-3BAA	PR65C-3AAA	PR65C-3DAA	PR65C-3CAA	PR65C-3EAA
Glycerine filled gauge on regulator(s)	PR65C-3BBA	PR65C-3ABA	PR65C-3DBA	PR65C-3CBA	PR65C-3EDA
Glycerine filled gauge opposite to regulator	PR65C-3BCA	PR65C-3ACA	PR65C-3DCA	PR65C-3CCA	—
Non-filled gauge on regulator(s)	PR65C-3BFA	PR65C-3AFA	PR65C-3DFA	PR65C-3CFA	PR65C-3EHA
Non-filled gauge opposite to regulator	PR65C-3BGA	PR65C-3AGA	PR65C-3DGA	PR65C-3CGA	—

PRA1A

PRA2D

PRA3C

PLUG-IN OPTIONS

PR65C-xxxx

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

TECHNICAL DATA

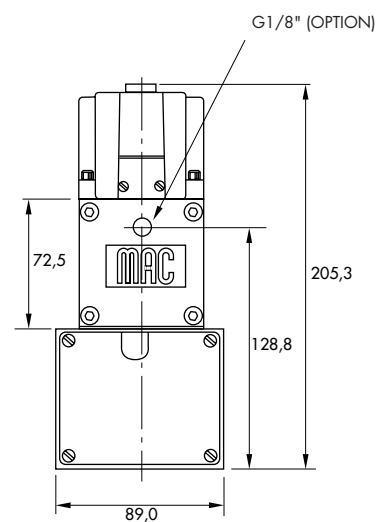
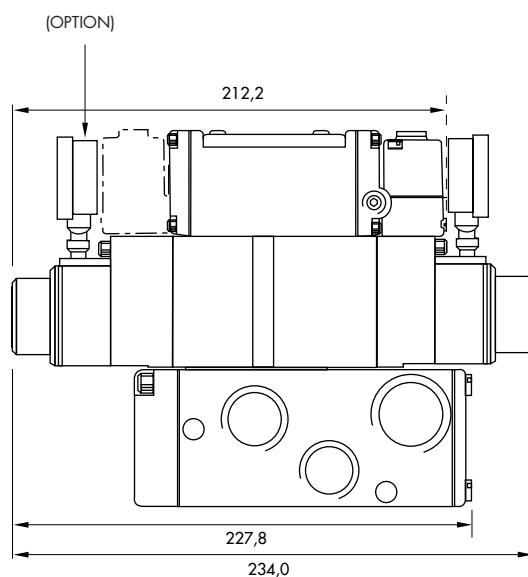
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	4000 NI/min

Spare parts :

- Pressure regulator (less sandwich block) : PR65C-4AAA.
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure 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-GAAA	PRA1A-GCAA	PRA1A-GBAA	PRA1A-GDAA	PRA1A-GEAA
Gauge parallel to regulator(s)	PRA1A-GADA	PRA1A-GCDA	PRA1A-GBDA	PRA1A-GDDA	PRA1A-GEEA
Gauge perpendicular to regulator(s)	PRA1A-GABA	PRA1A-GCBA	PRA1A-GBBA	PRA1A-GDBA	PRA1A-GECA

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure 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-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

PRA1A
PRA2D
PRA3C

* - To be used with dual pressure valves.

Valve code is : MV-A1C-AX5X-PM-XXYYZ (sgl. pressure ext. pilot)

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

Note : regulating range for above models is 0-8 bar. For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.

Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

ADJUSTMENT OPTIONS

PRA1A-xxxx

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external/remote air)
- Replace by K for slotted stem with locknut (internal pilot)
- Replace by L for slotted stem with locknut (external/remote air)

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1000 NI/min

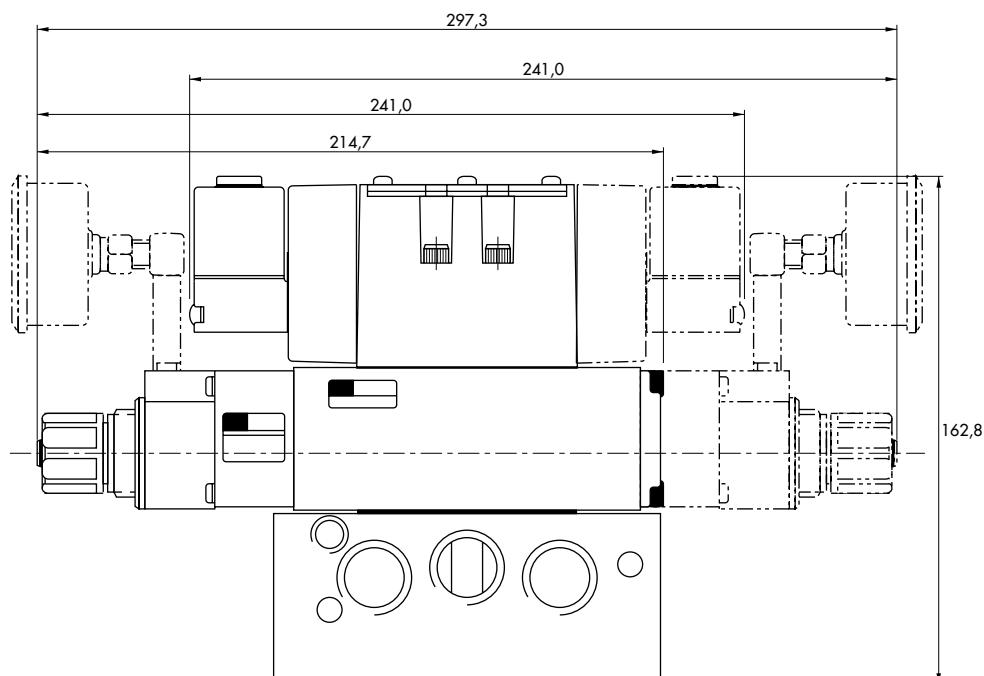
- Spare parts :
- Pressure regulator (less sandwich block) : PRA1A-JOAA (KNOB), PRA1A-C0AA (SLOTTED STEM), PRA1A-M0AA (SLOTTED STEM WITH LOCKNUT).
 - Gauges : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)
N-82016-03 (0-5.3 bar perpendicular)
N-82016-04 (0-5.3 bar parallel)
N-82016-05 (0-2 bar perpendicular)
N-82016-06 (0-2 bar parallel)

Regulating range options :

PRA1A-XXXXA	
Replace by B	- 0 to 5.3 bar
Replace by C	- 0 to 2 bar
Replace by D	- 0 to 8 bar on "14" end
	- 0 to 5.3 bar on "12" end
Replace by E	- 0 to 8 bar on "12" end
	- 0 to 5.3 bar on "14" end
Replace by F	- 0 to 8 bar on "14" end
	- 0 to 2 bar on "12" end
Replace by G	- 0 to 8 bar on "12" end
	- 0 to 2 bar on "14" end
Replace by H	- 0 to 5.3 bar on "14" end
	- 0 to 2 bar on "12" end
Replace by J	- 0 to 5.3 bar on "12" end
	- 0 to 2 bar on "14" end

DIMENSIONS

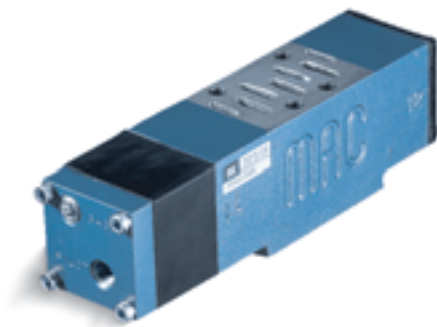
Dimensions shown are metric (mm)



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-DAAA	PRA1A-DCAA	PRA1A-DBAA	PRA1A-DDAA	PRA1A-DEAA
Gauge parallel to regulator(s)	PRA1A-DADA	PRA1A-DCDA	PRA1A-DBDA	PRA1A-DDDA	PRA1A-DEEA
Gauge perpendicular to regulator(s)	PRA1A-DABA	PRA1A-DCBA	PRA1A-DBBA	PRA1A-DDBA	PRA1A-DECA

PRA1A
PRA2D
PRA3C

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	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.

TECHNICAL DATA

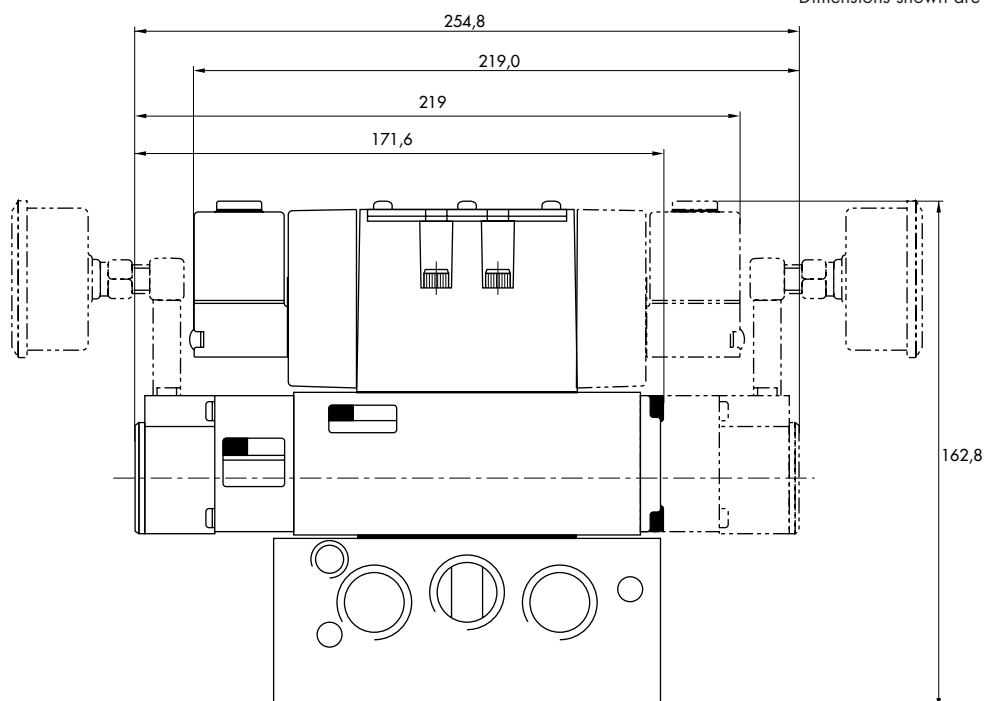
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1000 NI/min

Spare parts :

- Pressure regulator (less sandwich block) : PRA1A-FOAA.
- Gauges : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-1AAA	PRA2D-1EAA	PRA2D-1BAA	PRA2D-1FAA	PRA2D-1JAA
Non-filled gauge on regulator(s)	PRA2D-1ADA	PRA2D-1EDA	PRA2D-1BDA	PRA2D-1FDA	PRA2D-1JEA
Non-filled gauge opposite to regulator	PRA2D-1CDA	PRA2D-1GDA	PRA2D-1DDA	PRA2D-1HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-1ABA	PRA2D-1EBA	PRA2D-1BBA	PRA2D-1FBA	PRA2D-1JCA
Glycerine filled gauge opposite to regulator	PRA2D-1CBA	PRA2D-1GBA	PRA2D-1DBA	PRA2D-1HBA	—

PRA1A
PRA2D
PRA3C

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-2AAA	PRA2D-2EAA	PRA2D-2BAA	PRA2D-2FAA	PRA2D-2JAA
Non-filled gauge on regulator(s)	PRA2D-2ADA	PRA2D-2EDA	PRA2D-2BDA	PRA2D-2FDA	PRA2D-2JEA
Non-filled gauge opposite to regulator	PRA2D-2CDA	PRA2D-2GDA	PRA2D-2DDA	PRA2D-2HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-2ABA	PRA2D-2EBA	PRA2D-2BBA	PRA2D-2FBA	PRA2D-2JCA
Glycerine filled gauge opposite to regulator	PRA2D-2CBA	PRA2D-2GBA	PRA2D-2DBA	PRA2D-2HBA	—

* - To be used with dual pressure valves.

Valve code is : MV-A2B-AX5X-PM-XXYYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A2B-AX4X-PM-XXYYZZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-10 bar.

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)

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2300 NI/min

Spare parts :

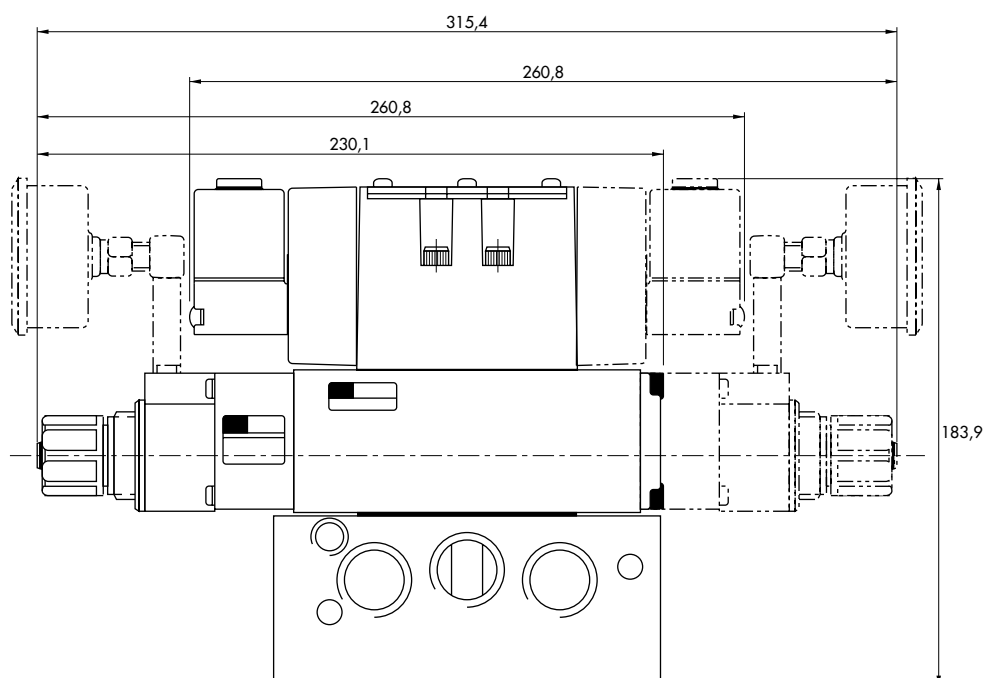
- Pressure regulator (less sandwich block) : PRA2D-30AA (KNOB), PRA2D-C0AA (SLOTTED STEM), PRA2D-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PRA2D-XXXA

Replace by B - 0 to 6.7 bar
 Replace by C - 0 to 3 bar

DIMENSIONS

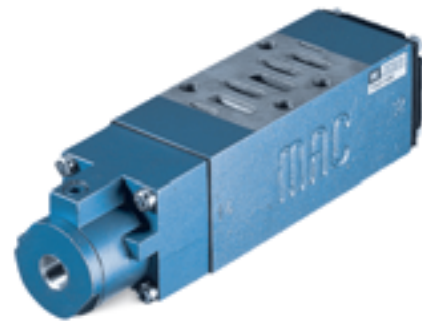
Dimensions shown are metric (mm)



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA2D-4AAA	PRA2D-4EAA	PRA2D-4BAA	PRA2D-4FAA	PRA2D-4JAA
Non-filled gauge on regulator(s)	PRA2D-4ADA	PRA2D-4EDA	PRA2D-4BDA	PRA2D-4FDA	PRA2D-4JEA
Non-filled gauge opposite to regulator	PRA2D-4CDA	PRA2D-4GDA	PRA2D-4DDA	PRA2D-4HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-4ABA	PRA2D-4EBA	PRA2D-4BBA	PRA2D-4FBA	PRA2D-4JCA
Glycerine filled gauge opposite to regulator	PRA2D-4CBA	PRA2D-4GBA	PRA2D-4DBA	PRA2D-4HBA	—

PRA1A
PRA2D
PRA3C

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA2D-5AAA	PRA2D-5EAA	PRA2D-5BAA	PRA2D-5FAA	PRA2D-5JAA
Non-filled gauge on regulator(s)	PRA2D-5ADA	PRA2D-5EDA	PRA2D-5BDA	PRA2D-5FDA	PRA2D-5JEA
Non-filled gauge opposite to regulator	PRA2D-5CDA	PRA2D-5GDA	PRA2D-5DDA	PRA2D-5HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-5ABA	PRA2D-5EBA	PRA2D-5BBA	PRA2D-5FBA	PRA2D-5JCA
Glycerine filled gauge opposite to regulator	PRA2D-5CBA	PRA2D-5GBA	PRA2D-5DBA	PRA2D-5HBA	—

* - To be used with dual pressure valves.

Valve code is : MV-A2B-AX5X-PM-XXYYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A2B-AX4X-PM-XXYYZZ (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.

TECHNICAL DATA

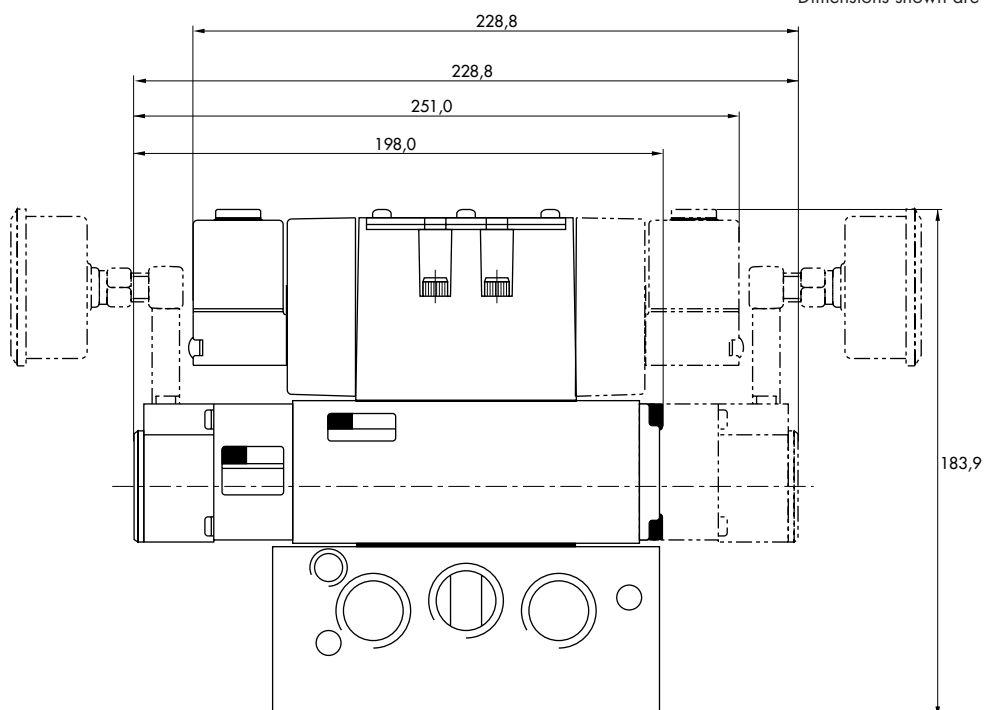
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2300 NI/min

Spare parts :

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

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-1AAA	PRA3C-1EAA	PRA3C-1BAA	PRA3C-1FAA	PRA3C-1JAA
Non-filled gauge on regulator(s)	PRA3C-1ADA	PRA3C-1EDA	PRA3C-1BDA	PRA3C-1FDA	PRA3C-1JEA
Non-filled gauge opposite to regulator	PRA3C-1CDA	PRA3C-1GDA	PRA3C-1DDA	PRA3C-1HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-1ABA	PRA3C-1EBA	PRA3C-1BBA	PRA3C-1FBA	PRA3C-1JCA
Glycerine filled gauge opposite to regulator	PRA3C-1CBA	PRA3C-1GBA	PRA3C-1DBA	PRA3C-1HBA	—

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	—

PRA1A
PRA2D
PRA3C

* - To be used with dual pressure valves.

Valve code is : MV-A3B-AX5X-PM-XXYYZZ (sgl. pressure ext. pilot)

Valve code is : MV-A3B-AX4X-PM-XXYYZZ (dual pressure ext. pilot)

Note : regulating range for above models is 0-10 bar.

For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.

Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

ADJUSTMENT OPTIONS

PRA3C-xxxx

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external pilot)
- Replace by D for slotted stem with locknut (internal pilot)
- Replace by E for slotted stem with locknut (external pilot)

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	5400 NI/min

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

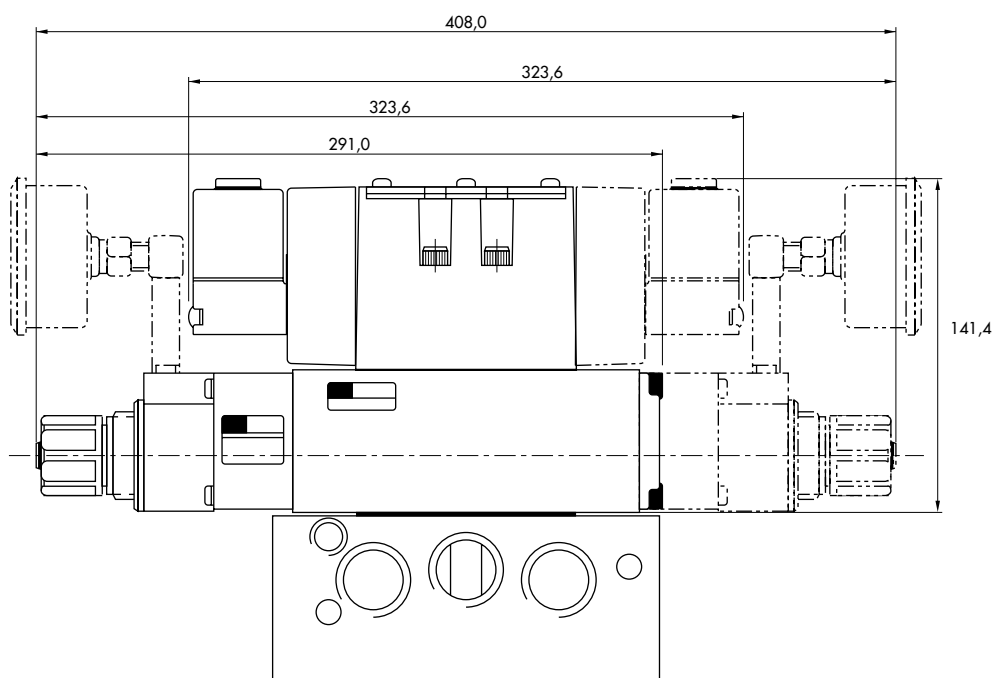
Regulating pressure options :

PRA3C-XXXA

 Replace by B - 0 to 6,7 bar
 Replace by C - 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



PR82A
PR63D
PR65C

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-4AAA	PRA3C-4EAA	PRA3C-4BAA	PRA3C-4FAA	PRA3C-4JAA
Non-filled gauge on regulator(s)	PRA3C-4ADA	PRA3C-4EDA	PRA3C-4BDA	PRA3C-4FDA	PRA3C-4JEA
Non-filled gauge opposite to regulator	PRA3C-4CDA	PRA3C-4GDA	PRA3C-4DDA	PRA3C-4HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-4ABA	PRA3C-4EBA	PRA3C-4BBA	PRA3C-4FBA	PRA3C-4JCA
Glycerine filled gauge opposite to regulator	PRA3C-4CBA	PRA3C-4GBA	PRA3C-4DBA	PRA3C-4HBA	—

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-5AAA	PRA3C-5EAA	PRA3C-5BAA	PRA3C-5FAA	PRA3C-5JAA
Non-filled gauge on regulator(s)	PRA3C-5ADA	PRA3C-5EDA	PRA3C-5BDA	PRA3C-5FDA	PRA3C-5JEA
Non-filled gauge opposite to regulator	PRA3C-5CDA	PRA3C-5GDA	PRA3C-5DDA	PRA3C-5HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-5ABA	PRA3C-5EBA	PRA3C-5BBA	PRA3C-5FBA	PRA3C-5JCA
Glycerine filled gauge opposite to regulator	PRA3C-5CBA	PRA3C-5GBA	PRA3C-5DBA	PRA3C-5HBA	—

* - To be used with dual pressure valves.

Valve code is : MV-A3B-AX5X-PM-XXYYZ (sgl. pressure ext. pilot)

Valve code is : MV-A3B-AX4X-PM-XXYYZ (dual pressure ext. pilot)

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.

Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

PRA1A
PRA2D
PRA3C

TECHNICAL DATA

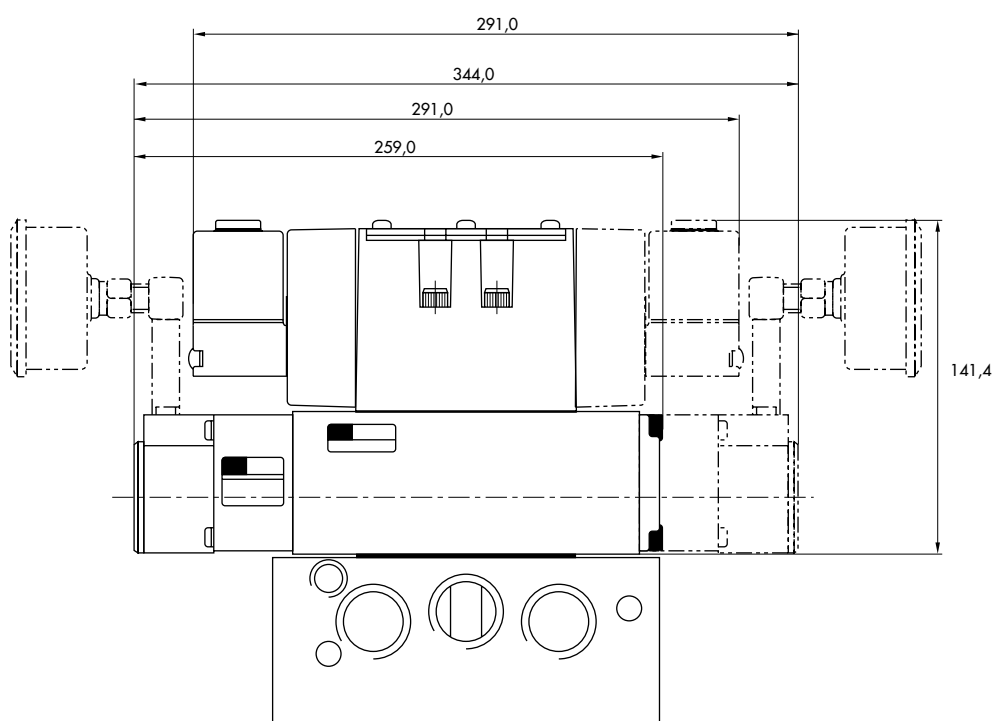
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	5400 NI/min

Spare parts :

- Pressure regulator (less sandwich block) : PRA3C-60AA.
- Gauges : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)





Section 6 Options

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

VALVE CODE ► **- $\frac{XX}{1} \frac{Y}{2} \frac{ZZ}{3} \frac{(-VV)}{4}$**

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

1. VOLTAGE (type 100 Series)				1. VOLTAGE (type 200 Series)			
- XX	Y	ZZ	VOLTAGE	- XX	Y	ZZ	VOLTAGE
11			120 V~/60 Hz - 110 V~/50 Hz	11			120 V~/60 Hz - 110 V~/50 Hz - 24 V=/6 W
12			240 V~/60 Hz - 220 V~/50 Hz	12			240 V~/60 Hz - 220 V~/50 Hz
13			100 V~/60 Hz - 100 V~/50 Hz	13			100 V~/60 Hz - 100 V~/50 Hz
15			200 V~/60 Hz - 200 V~/50 Hz	14			200 V~/60 Hz - 200 V~/50 Hz
16			10 V~/60 Hz	20			6 V~/60 Hz
20			6 V~/60 Hz	21			12 V~/60 Hz
21			12 V~/50 Hz - 12 V~/60 Hz	22			24 V~/60 Hz - 24 V~/50 Hz
22			24 V~/60 Hz - 24 V~/50 Hz	23			32 V~/60 Hz - 32 V~/50 Hz
23			32 V~/60 Hz - 32 V~/50 Hz	24			48 V~/60 Hz - 42 V~/50 Hz
24			48 V~/60 Hz - 42 V~/50 Hz	25			240 V~/50 Hz
26			380 V~/50 Hz, 440 V~/50 Hz -440 V~/60 Hz, 480 V~/60 Hz-CLSF	26			480 V~/60 Hz - 440 V~/50 Hz
29			220 V~/60 Hz	27			127 V~/60 Hz
34			127 V~/50 Hz - 120 V~/50 Hz	28			415 V~/50 Hz
35			48 V~/50 Hz	29			220 V~/60 Hz
36			16 V~/60 Hz	30			380 V~/50 Hz
B1			24 V~/50 Hz	31			550 V~/60 Hz - 550 V~/50 Hz
50			24 V=/6 W	32			120 V~/60 Hz - 110 V~/50 Hz
51			24 V=/4 W	33			600 V~/60 Hz
54			12 V=/4 W	34			127 V~/50 Hz
55			12 V=/6 W	35			48 V~/50 Hz
57			12 V=/2,5 W	50			24 V=/6 W
59			24 V=/2,5 W	51			24 V=/4,5 W
60			12 V=/8,5 W	52			24 V=/2,5 W
61			24 V=/8,5 W	53			24 V=/1 W
64			6 V=/6 W	55			12 V=/6 W
65			32 V=/7 W	57			12 V=/2,5 W
66			48 V=/5,8 W	58			48 V=/2,5 W
67			64 V=/7,5 W	60			12 V=/9,5 W
68			120 V=/6,4 W	61			24 V=/8,5 W
69			220 V=/8,7 W - 250 V=/11,2 W CLSF	64			6 V=/8,5 W
75			90 V=/8,8 W CLSF	65			32 V=/10 W
76			100 V=/6,9 W CLSF	66			48 V=/11,5 W
84			125 V=/10,9 W CLSF	67			64 V=/10,5 W
87			24 V=/17,1 W CLSF	68			120 V=/12,3 W
88			12 V=/17,4 W CLSF	69			250 V=/9,2 W
89			36 V=/18,8 W CLSF	71			8 V=/8,2 W
90			28 V=/8,2 W	72			24 V=/12 W
91			6 V=/10,6 W CLSF	73			198 V=/10 W
92			190 V=/6,5 W	74			72 V=/11,3 W
94			3 V=/7 W	75			90 V=/11,3 W
95			38 V=/6,4 W	76			100 V=/9 W
A1			24 V=/1 W	77			220 V=/10 W - 230 V=/1,6 W
A2			12 V=/1 W	78			24 V=/24 W CLSF
A3			9 V=/1 W	80			55 V=/10,6 W CLSF
MOD. DD01 : Protection diode (DC) - Max. 8,5 W				82			170 V=/11,1 W
MOD. MOV1 : Protection varistor (AC) - Max. 8,5 W				83			15 V=/8,1 W
				84			125 V=/10 W
				86			36 V=/11 W
				93			12 V=/24 W CLSF

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

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

3. ELECTRICAL CONNECTION (type 100 Series)

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

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

3. ELECTRICAL CONNECTION (type 200 Series)

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPS conduit
FA	Military type 2 PIN
GA	Military type 3 PIN
HA	AA with ground wire
JA*	Square connector
JC	Square connector with light
JJ	Square connector, male only
NA	CA with ground wire
NC	CC with ground wire

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

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



0 p t i 0 n s

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

VALVE CODE ► **-D XX X - X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Solenoid valves 35, 45 and 82 Series

1. VOLTAGE

- D XX X - X XX	VOLTAGE
AA	120 V~/60 Hz - 110 V/50 Hz
AB	240 V~/60 Hz - 220 V/50 Hz
AC	24 V~/60 Hz - 24 V/50 Hz
AD	24 V~/60 Hz
AE	200 V~/60 Hz
AF	240 V~/50 Hz
AG	240 V~/50 Hz
DA	24 V=/5,4 W
DB	12 V=/5,4 W
DC	12 V=/7,5 W
DD	24 V=/7,3 W
DE	12 V=/12,7 W CLSF only
DF	24 V=/12,7 W CLSF only
DK	110 V=/4,7 W
DL	64 V=/6 W
DM	36 V=/5,3 W
DN	6 V=/6 W
DP	48 V=/5,8 W
DU	24 V=/6 W
EA	12 V=/6 W
FA	12 V=/1,8 W
FB	24 V=/1,8 W
FE	12 V=/2,4 W
FF	24 V=/2,4 W

2. WIRE LENGTH

- D XX X - X XX	WIRE LENGTH
A	45 cm - 18"
B	60 cm - 24"
C	90 cm - 36"
D	120 cm - 48"
E	180 cm - 72"
F	240 cm - 96"
J	For external plug-in connector ("J", "K" & "T" type electrical connection)
P	For plug-in valves (82 Series only)

3. MANUAL OPERATOR

- D XX X - X XX MANUAL OPERATOR

0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

4. ELECTRICAL CONNECTION

- D XX X - X XX ELECTRICAL CONNECTION

BA	Flying leads
BK	BA with protection diode
BL	BA with protection varistor (M.O.V.)
** CA	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
KB	Square connector with protection diode
KC	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
KJ	Square connector (male only)
KK	Square connector with protection diode (male only)
KL	Square connector with protection varistor (male only) (M.O.V.)
*** MA	Electrical common conduit
TA	Dual tabs
TB	TA with protection diode
TD	TA with light
TE	TA with light and protection diode
TJ	Dual tabs (male only)
TK	TJ with protection diode
TM	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.)

* To be used with 82 Series only

** Inline valves only for 35 & 45 series. No restrictions for 82 series.

*** Stacking valves only for 35 & 45 series. Conduit end plate kit required, one per stack.

35 series : M-35002-01P

45 series : M-45005-01P

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 products to operate as intended could in any way jeopardize the safety of the operator or any other person or property.

- Do not operate outside of pressure range listed on a valve label or outside of the designated temperature range
- Air supply must be clean and dry. Moisture or contamination can affect proper operation of the valve.
- Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

APPLICATION PRECAUTIONS :

INDUSTRIAL USE -

MAC Valves 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 Valves 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 in both outlet ports would present a hazard in the application or servicing, a separate method in the system must be provided to remove the trapped air or this type valve should not be used.

B. OPEN CENTER-

With this type valve, when in the center position, the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. If having no air in either outlet port would present a hazard in the application or servicing, this type valve should not be used.

C. PRESSURE CENTER-

With this type valve, when in the center position, the inlet port(s) is connected to both outlet ports of the valve. If having pressurized air to either or both outlet ports would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the retained air or this type valve should not be used.

OPERATING SPECIFICATIONS -

MAC Valves products are to be installed only on applications that meet all operating specifications described in the MAC catalog for the MAC Valves product.

MANUAL OPERATORS-

Most MAC valves can be ordered with manual operators. Manual operators when depressed, are designed to shift the valve to the same position as would the corresponding solenoid or remote air pilot operator if it were activated. Care must be taken to order a type, if any, that will be safe for the physical location of the manual operator in the system. If intentional or accidental operation of a valve by a manual operator could cause personal injury or property damage, a manual operator should not be used.

REMOTE AIR OPERATED VALVES

Pilot valves supplying signal pressure to remote air operated valves should be 3-way valves with adequate supply and exhaust capacity to provide positive pressurizing and exhausting of the pilot supply line. Pilot lines should be open to exhaust when valves are deenergized.

INSTALLATION PRECAUTIONS :

- Do not install MAC Valves product without first turning off air (bleed system completely) and electricity to the machine.
- MAC Valves product should only be installed by qualified, knowledgeable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.
- If air line lubrication is used do not use any lubrication other than those recommended in the catalog, parts & operation sheet or by the factory.

SERVICE PRECAUTIONS :

- Do not service or remove from service any MAC Valves product without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.
- MAC Valves should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific product is used and/or how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.
- Before attempting to repair, adjust or clean a MAC Valves product, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to the valve.
- MAC Valves products are never to be stepped on while working on a machine. Damage to a MAC valves, 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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