



Section 1

Direct solenoid and solenoid pilot operated valves



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max) NI/min	Individual mounting						Manifold mounting								Series					
			Inline	Sub-base non "plug-in"	Sub-base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid	Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2	stacking	Manifold base non "plug-in"	Manifold base "plug-in"	Manifold base "plug-in" with pressure regulators	Manifold base "plug-in" with flow controls	Manifold base "plug-in" with PR & FC	Sub-base/manifold base non "plug-in" with latching solenoid		Sub-base/manifold base "plug-in" with latching solenoid	Sub-base non "plug-in"	Sub-base "plug-in"	Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
3/2 - 2/2	M5	120																				34
3/2	G1/8"	300																				36
3/2	G1/8" - M5	300																				32
3/2	G1/8"	400																				37
3/2	M5 - M7	400																				38
3/2	G1/8" - G1/4"	500																				52
3/2	G1/8"	1200																				67
3/2 - 2/2	G1/8" - G1/4"	1500																				44
3/2 - 2/2	G3/4" - G1"	20000																				46
5/2	M5	100																				42
4/2	G1/8" - M5	300																				47
4/2	G1/8"	300																				48
5/2 - 5/3	M5 - M7	400																				400
5/2	M5 - M7	400																				92
5/2	G1/8" - G1/4"	500																				93
5/2 - 5/3	G1/8"	1100																				ISO 1
5/2	G1/8"	1100																				ISO 2
5/2	G1/8"	1000																				ISO 3
5/2 - 5/3	G1/8" - G1/4"	1000																				
5/2 - 5/3	G1/8" - G1/4" - G3/8"	1200																				
5/2 - 5/3	G1/4" - G3/8"	1200																				
5/2 - 5/3	G3/8" - G1/2"	3800																				
5/2 - 5/3	G1/4" - G3/8" - G1/2"	3400																				
5/2 - 5/3	G1/4" - G3/8"	1800																				
5/2 - 5/3	G3/8" - G1/2"	3000																				
5/2 - 5/3	G1/2" - G3/4"	6100																				

Individual mounting

Series

Inline

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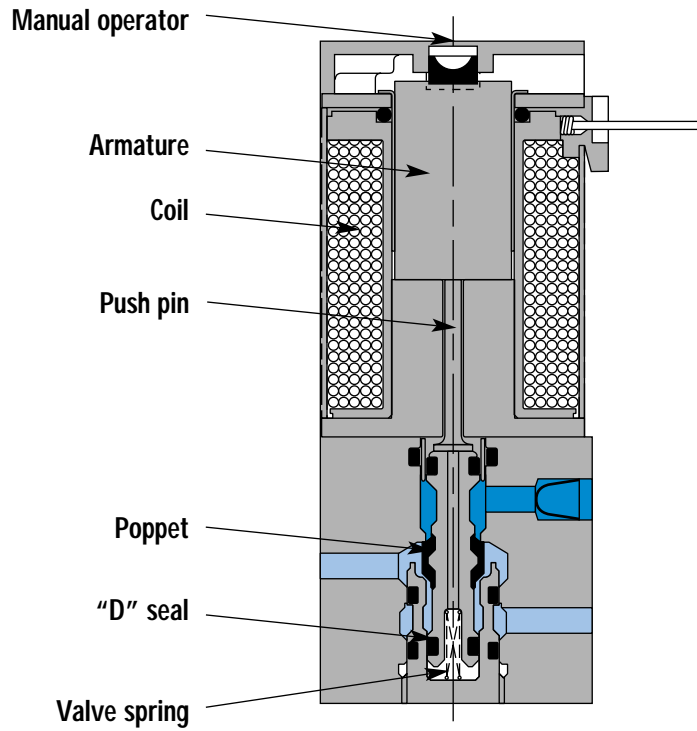
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	M5	120 NI/min	Inline	

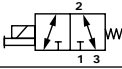
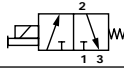
OPERATIONAL BENEFITS

1. 10 mm valve, direct solenoid operated.
2. Balanced poppet, immune to variations of pressure.
3. Short stroke with high flow.
4. Patented solenoid develops high shifting forces.
5. Powerful return spring.
6. Manual operator standard on all valves.



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HOW TO ORDER

Port size	Universal valve	NC only valve
		
M5	34B-ABA-G XXX-XXX	34B-ABB-G XXX-XXX

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SOLENOID OPERATOR ▶

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V~/2,5W	A	45 cm	1	Non-locking	KA	Mini connector
DC	24 V~/1,8W	B	60 cm			KT	Mini connector with light
DD	24 V~/2,5W	C	90 cm			BA	Flying leads
DF	24 V~/4,0W					BT	Flying leads with light
						KC	Mini connector with rectifier and light

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400
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Note : AC voltage requires connector with rectifier.

* Click here for other options available.

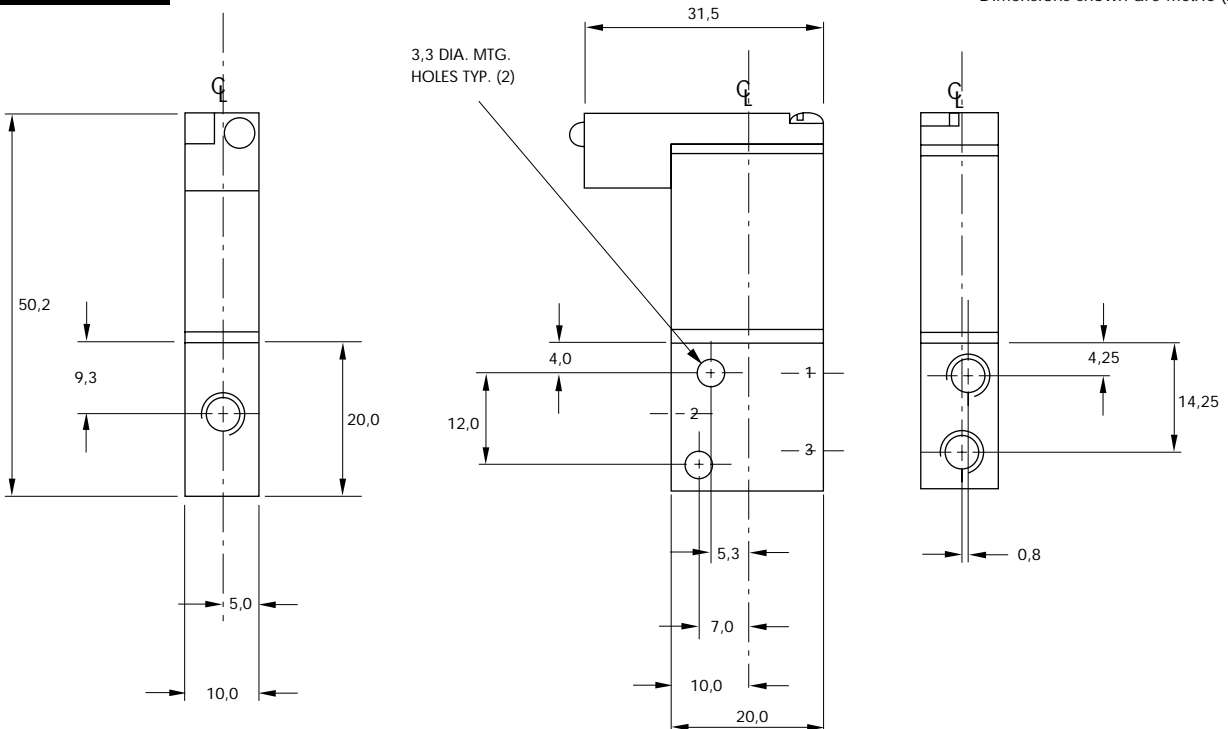
ISO 1
ISO 2
ISO 3

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
Orifice :	1,8 mm
Flow :	4 W : 120 NI/min (Cv 0,12) – 2,5 W : 100 NI/min (Cv 0,10) – 1,8 W : 60 NI/min (Cv 0,06)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	4 W – 2,5 W – 1,8 W
Response times :	Energize : 3,4 ms
(with 4 W coil)	De-energize : 1,5 ms

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline

Series

Manifold mounting

Stacking	Manifold base "plug-in"	Manifold base "plug-in" with pressure regulators
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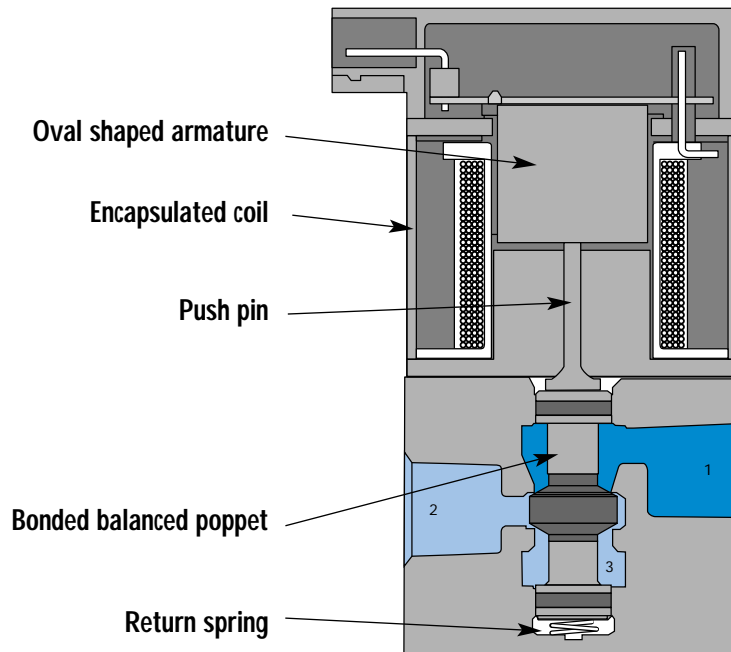
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- Patented high force 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 available.
- Low wattage DC solenoids — down to 1.8 watts.
- Rectified AC voltage.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2	G1/8"	300 NI/min	Inline	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.



HOW TO ORDER

Port size	Universal valve	NC only valve
G1/8"	36A-ACA-J xxx-xxx	36A-ACB-J xxx-xxx

SOLENOID OPERATOR ►

J **xxx-xxx*** (-G) Add "G" for ground

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
AA	120V~/5,4W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24V~/5,4W	B	60 cm	2	Locking	GA	MAC JAC solenoid plug-in
DB	12V~/5,4W	C	90 cm			GB	MAC JAC solenoid plug-in with diode
DC	24V~/2,4W					GD	MAC JAC solenoid plug-in with light
DD	12V~/2,4W					GG	MAC JAC solenoid plug-in rectifier

* Click here for other options available.

Note : - AC voltage requires connector with rectifier.

- The MAC JAC connector is similar to the connector used for valves that incorporate the "G" type solenoid. With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.

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ISO 1

ISO 2

ISO 3

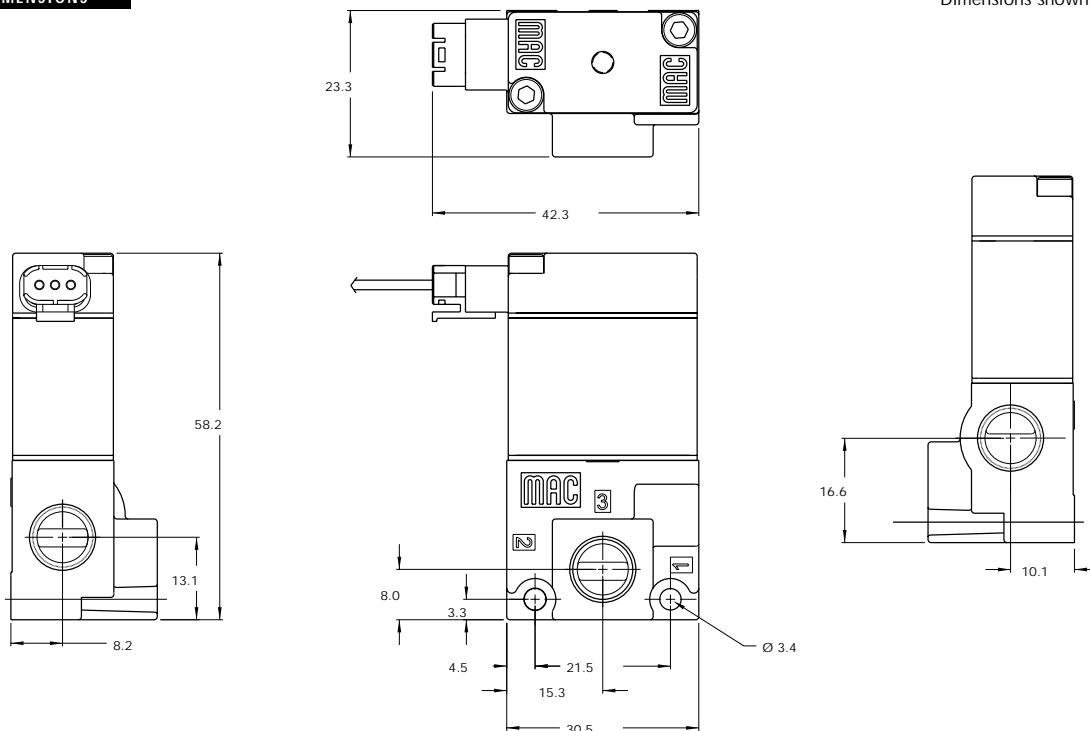
TECHNICAL DATA

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
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 300 NI/min (Cv 0 ,3)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4 W – 2,4 W – 1,0 W

Option : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2	G1/8" - M5	300 NI/min	Stacking	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	NC only stacking	NC stacking Universal poppet	NO stacking Universal poppet	Series
G1/8"	36A-SCB-J xxx-xxx	36A-SCC-J xxx-xxx	36A-SCD-J xxx-xxx	46
M5	36A-SDB-J xxx-xxx	36A-SDC-J xxx-xxx	36A-SDD-J xxx-xxx	47

SOLENOID OPERATOR >

J **xxx-xxx*** (-G) Add "G" for ground

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection	Series
AA	120V~/5,4W	A	45 cm	1	Non-locking	BA	Flying leads	400
DA	24V~/5,4W	B	60 cm	2	Locking	GA	MAC JAC solenoid plug-in	92
DB	12V~/5,4W	C	90 cm			GB	MAC JAC solenoid plug-in with diode	93
DC	24V~/2,4W					GD	MAC JAC solenoid plug-in with light	
DD	12V~/2,4W					GG	MAC JAC solenoid plug-in rectifier	

* Click here for other options available.

Note : - AC voltage requires connector with rectifier.

- The MAC JAC connector is similar to the connector used for valves that incorporate the "G" type solenoid. With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.

End plate kit required (port size G1/4") : M-36001-01P.

BODY TYPE OPTIONS

36A-SCB-Jxxx-xxx

- S Stacking body
- T Stacking body with bottom inlet

ISO 1

ISO 2

ISO 3

TECHNICAL DATA

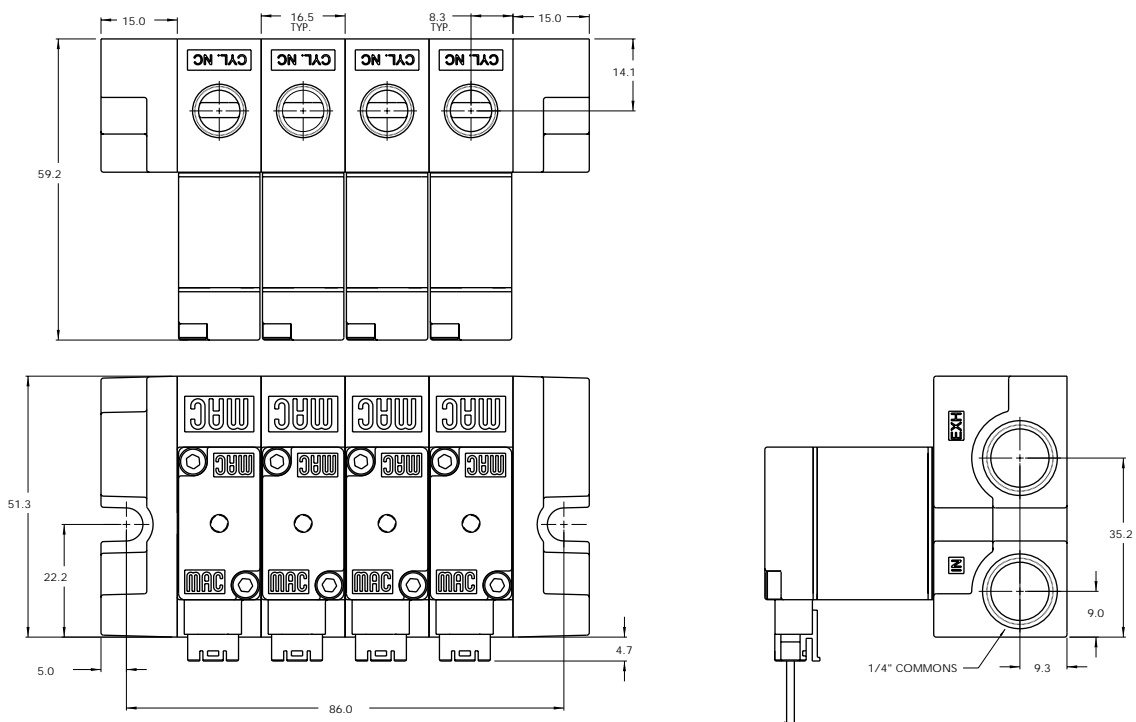
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 300 NI/min (Cv 0,3) – M5 : 300 NI/min (Cv 0,3)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4 W – 2,4 W – 1,0 W

Option : • NPTF threads

Spare parts : • Inlet & exhaust isolator plate : N-36001 • Inlet isolator : N-36002
• Exhaust isolator : N-36003 • Tie rod (x2) : 79411

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2	G1/8"	300 NI/min	Manifold base "plug-in"	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Universal Valve Normally Closed	Universal Valve Normally Open	Normally Closed Only	Series
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Valve less base	36A-J00-00-J xxP-xxx	36A-K00-00-J xxP-xxx	36A-L00-00-J xxP-xxx	42
G1/8"	36A-JSC-AE-J xxP-xxx	36A-KSC-AF-J xxP-xxx	36A-LSC-AE-J xxP-xxx	47

SOLENOID OPERATOR >

J **XX** P-**XXX*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection	Series
AA 120V~/5,4W	1 Non-locking	FA Base plug-in	400
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode	
DB 12V~/5,4W		FG Base plug-in with rectifier	92
DC 24V~/2,4W			
DD 12V~/2,4W			

* Click here for other options available.

Note : AC voltage requires connector with rectifier.

Example : Manifold base only : 36A-0SC-AC (Normally closed manifold base).

End plate quit required (port size G1/4") : M-46003-01P.

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ISO 1

ISO 2

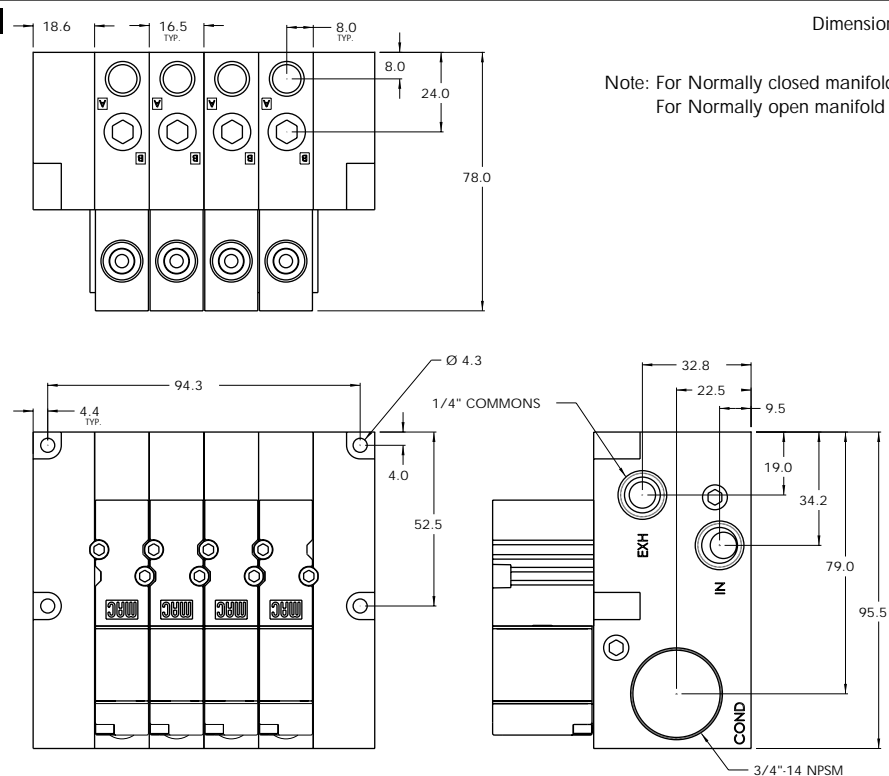
ISO 3

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
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4 W – 2,4 W – 1,8 W

- Option :
- NPTF threads
- Spare parts :
- Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002
 - Tie rod (x2) : 79443

DIMENSIONS





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2	G1/8"	300 NI/min	Manifold base "plug-in" with pressure regulators	34

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Universal Valve Normally Closed	Universal Valve Normally Open	Normally Closed Only	Series
				46
Valve less base	36A-J00-00-J xxP-xxx	36A-K00-00-J xxP-xxx	36A-L00-00-J xxP-xxx	42
G1/8"	36A-JSC-AG-J xxP-xxx	36A-KSC-AH-J xxP-xxx	36A-LSC-AG-J xxP-xxx	47

SOLENOID OPERATOR ▶

J **xxP-xxx*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection	Series
AA 120V~/5,4W	1 Non-locking	FA Base plug-in	400
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode	92
DB 12V~/5,4W		FG Base plug-in with rectifier	93
DC 24V~/2,4W			ISO 1
DD 12V~/2,4W			ISO 2

* Click here for other options available.

Note : AC voltage requires connector with rectifier.

OPTIONS

36A-JSC-AG-J**xxP-xxx**

- G** NC manifold & regulator with slotted stem adjustment
- S** NC manifold & regulator with locking slotted stem adjustment
- J** NC manifold & regulator with knob adjustment
- H** NO manifold & regulator with slotted stem adjustment
- T** NO manifold & regulator with locking slotted stem adjustment
- K** NO manifold & regulator with knob adjustment

Note : All manifold bases are only available with a bottom cylinder port.

Example : Manifold base only : 36A-OSC-AJ (Normally closed manifold base & regulator with knob).

End plate quit required (port size G1/4") : M-46003-01P.

TECHNICAL DATA

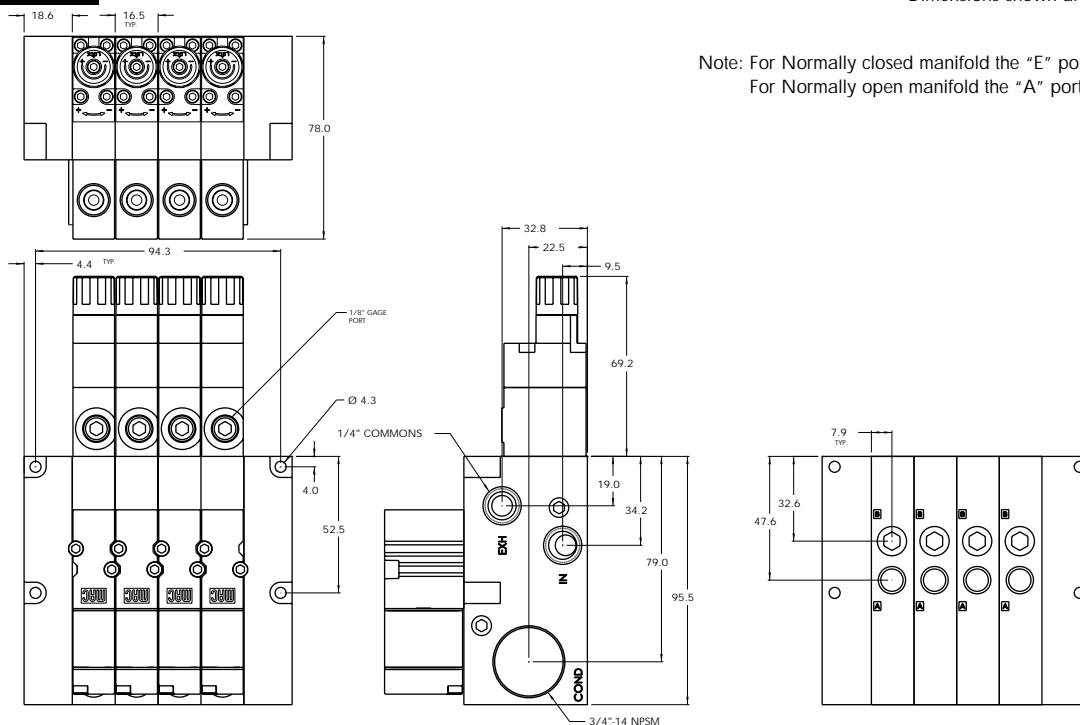
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 μ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4 W – 2,4 W – 1,8 W

Option : • NPTF threads

Spare parts : • Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002
• Tie rod (x2) : 79443

DIMENSIONS

Dimensions shown are metric (mm)



Note: For Normally closed manifold the "E" port is plugged.
For Normally open manifold the "A" port is plugged.

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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Series

34

Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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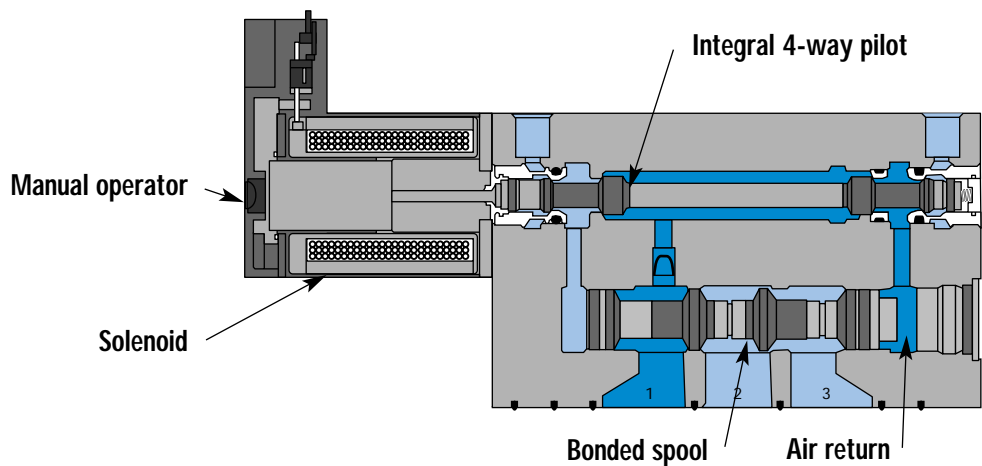
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- High force MACSOLENOID[®].
- Integral 4-way pilot design.
- Internal or external pilot.
- Normally open or normally closed function.
- Universal function (external pilot).
- Rectified AC voltage.
- Latching solenoid technology.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	G1/8"	400 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	32A-BMA-000-Gxxx-xxx	32A-AMA-000-Gxxx-xxx	
	External	32A-BMB-000-Gxxx-xxx	32A-AMB-000-Gxxx-xxx	32A-GMB-000-Gxxx-xxx
G1/8"	Internal	32A-BMA-HAL-Gxxx-xxx	32A-AMA-HAL-Gxxx-xxx	
	External	32A-BMB-HAM-Gxxx-xxx	32A-AMB-HAM-Gxxx-xxx	32A-GMB-HAM-Gxxx-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
AA	120 V~/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V~/1,0W	B	60 cm	2	Locking	BT	Flying leads with light
DC	24 V~/1,8W	C	90 cm			KA	Mini connector
DD	24 V~/2,5W					KT	Mini connector with light
DF	24 V~/4,0W					KD	Mini connector with rectifier & light & ground

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 32 series with non plug-in base configuration must use type "B" or "K" electrical connector.

Latching solenoid also available, click here.

OPTIONS

Pilot/Base Configuration :

32A-xMx-xAx-Gxxx-xxx

- A Individual base – Side port
- B Individual base – Bottom port
- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust (not available with external pilot)

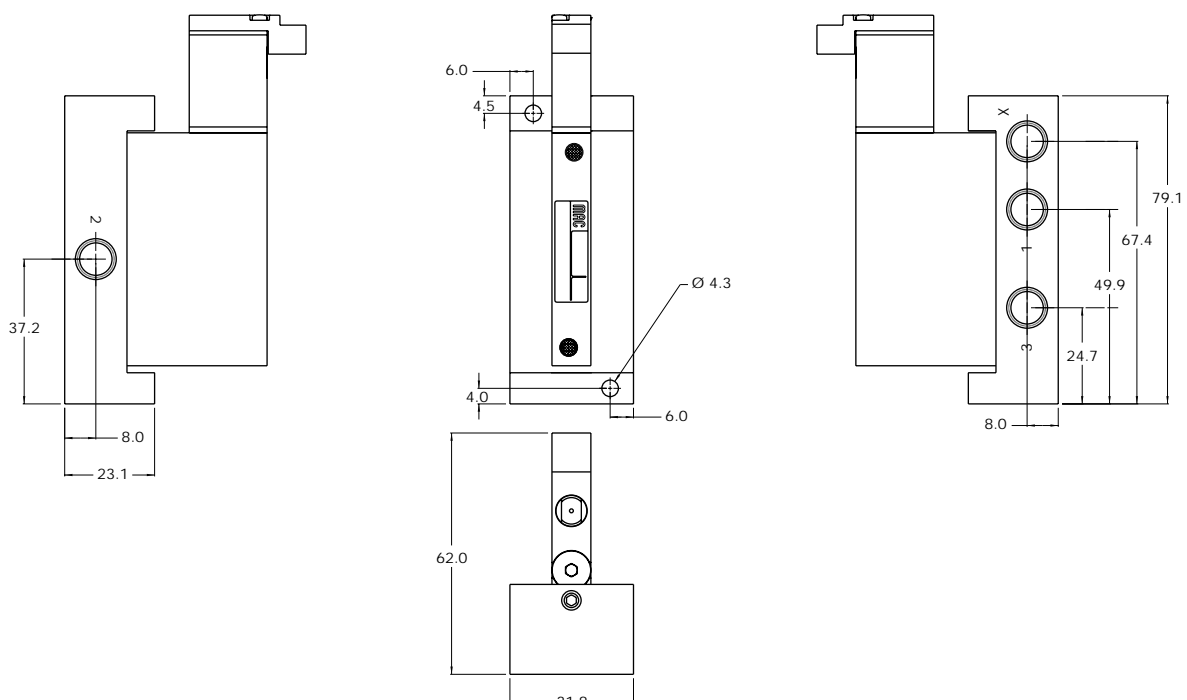
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



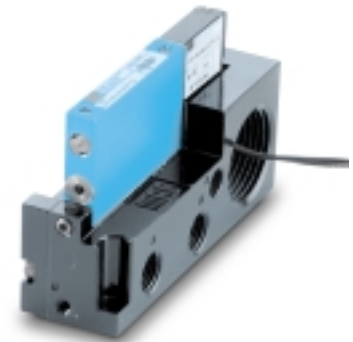


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	M5, M7	400 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



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HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	32A-BMA-000-GxxP-xxx	32A-AMA-000-GxxP-xxx	
	External	32A-BMB-000-GxxP-xxx	32A-AMB-000-GxxP-xxx	32A-GMB-000-GxxP-xxx
M5	Internal	32A-BMA-GAA-GxxP-xxx	32A-AMA-GAA-GxxP-xxx	
	External	32A-BMB-GAB-GxxP-xxx	32A-AMB-GAB-GxxP-xxx	32A-GMB-GAB-GxxP-xxx
M7	Internal	32A-BMA-LAA-GxxP-xxx	32A-AMA-LAA-GxxP-xxx	
	External	32A-BMB-LAB-GxxP-xxx	32A-AMB-LAB-GxxP-xxx	32A-GMB-LAB-GxxP-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G XX P-XXX*

XX	Voltage	X	Manual operator	XX	Electrical connection**
AA	120 V-/2,5W	1	Non-locking	DJ	Base plug-in
DA	24 V-/1,0W	2	Locking	DT	Base plug-in with light
DC	24 V-/1,8W			DD	Base plug-in with rectifier & light & ground
DD	24 V-/2,5W				
DF	24 V-/4,0W				

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 32 series with plug-in base configuration must use type "D" electrical connector. Latching solenoid also available, click here.

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ISO 1
ISO 2
ISO 3

OPTIONS

Pilot/Base Configuration :

32A-M-A-GxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- M** Pilot exhaust muffled
- R** Pilot exhaust piped M5
- U** Pilot exhaust to main exhaust (not available with external pilot)

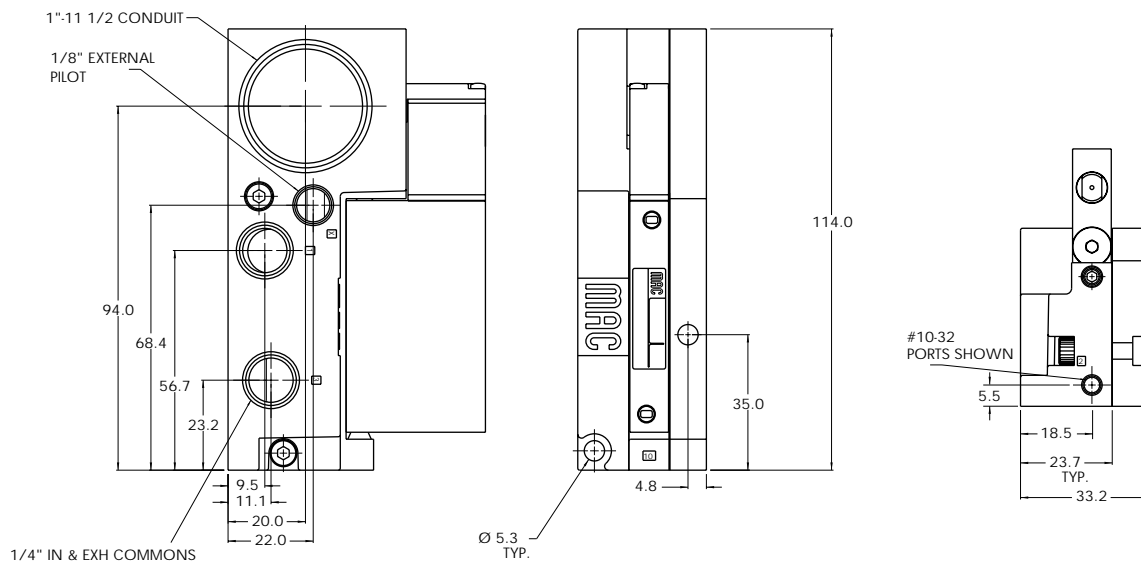
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M5 : 350 NI/min (Cv 0,35) - M7 : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC	M5, M7	400 NI/min	Manifold base non "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	32A-BMA-000-Gxxx-xxx	32A-AMA-000-Gxxx-xxx	
	External	32A-BMB-000-Gxxx-xxx	32A-AMB-000-Gxxx-xxx	32A-GMB-000-Gxxx-xxx
M5	Internal	32A-BMA-GJL-Gxxx-xxx	32A-AMA-GJL-Gxxx-xxx	
	External	32A-BMB-GJM-Gxxx-xxx	32A-AMB-GJM-Gxxx-xxx	32A-GMB-GJM-Gxxx-xxx
M7	Internal	32A-BMA-LJL-Gxxx-xxx	32A-AMA-LJL-Gxxx-xxx	
	External	32A-BMB-LJM-Gxxx-xxx	32A-AMB-LJM-Gxxx-xxx	32A-FMB-LJM-Gxxx-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
AA	120 V-/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V-/1,0W	B	60 cm	2	Locking	BT	Flying leads with light
DC	24 V-/1,8W	C	90 cm			KA	Mini connector
DD	24 V-/2,5W					KT	Mini connector with light
DF	24 V-/4,0W					KD	Mini connector with rectifier & light & ground

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 32 series with non plug-in base configuration must use type "B" or "K" electrical connector.

Latching solenoid also available, click here.

OPTIONS

Base only :

32A-000-xxx (i.e. 32A-000-GJL)

Base Configuration :

32A-xMx-xJx-Gxxx-xxx

- J Manifold base – Side port
- K Manifold base – Bottom port

- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust (not available with external pilot)

Note : Manifold assemblies require an end plate kit :
 M-32003-01-01P (Internal pilot)
 M-32003-02-01P (External pilot)

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ISO 1

ISO 2

ISO 3

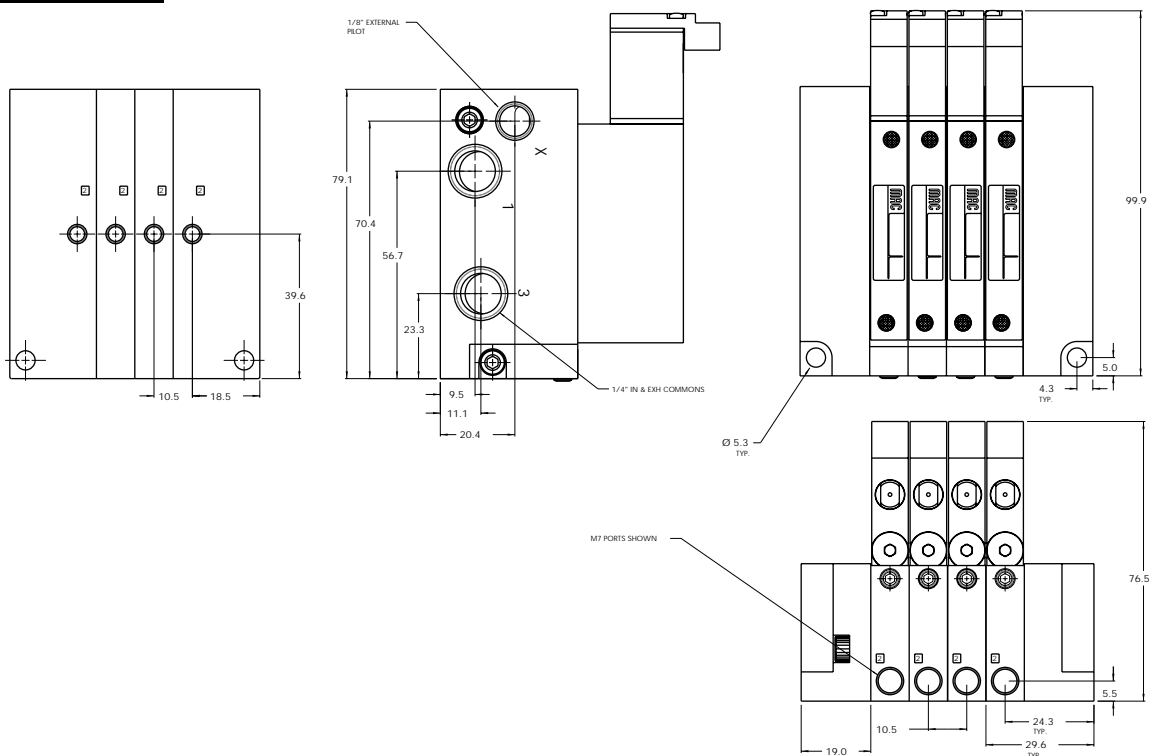
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M5 : 350 NI/min (Cv 0,35) - M7 : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)

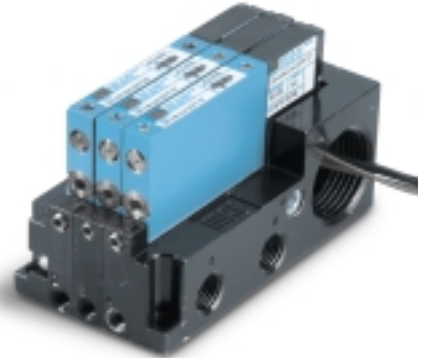


Consult "Precautions" before use, installation or service of MAC Valves..

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC	M5, M7	400 NI/min	Manifold base "plug-in"	

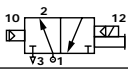
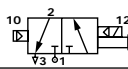
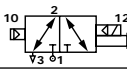
OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



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HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
				
Valve less base	Internal	32A-BMA-000-GxxP-xxx	32A-AMA-000-GxxP-xxx	
	External	32A-BMB-000-GxxP-xxx	32A-AMB-000-GxxP-xxx	32A-GMB-000-GxxP-xxx
M5	Internal	32A-BMA-GJA-GxxP-xxx	32A-AMA-GJA-GxxP-xxx	
	External	32A-BMB-GJB-GxxP-xxx	32A-AMB-GJB-GxxP-xxx	32A-GMB-GJB-GxxP-xxx
M7	Internal	32A-BMA-LJA-GxxP-xxx	32A-AMA-LJA-GxxP-xxx	
	External	32A-BMB-LJB-GxxP-xxx	32A-AMB-LJB-GxxP-xxx	32A-GMB-LJB-GxxP-xxx

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400

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G XX P-XXX*

XX	Voltage	X	Manual operator	XX	Electrical connection**
AA	120 V-/2,5W	1	Non-locking	DJ	Base plug-in
DA	24 V-/1,0W	2	Locking	DT	Base plug-in with light
DC	24 V-/1,8W			DD	Base plug-in with rectifier & light & ground
DD	24 V-/2,5W				
DF	24 V-/4,0W				

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ISO 1
ISO 2
ISO 3

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 32 series with plug-in base configuration must use type "D" electrical connector. Latching solenoid also available, click here.

OPTIONS

Base only :

32A-000-xxx (i.e. 32A-000-GJA)

Base Configuration :

32A-xxx-Jx-GxxP-xxx

- J Manifold base - Side port
- K Manifold base - Bottom port
- L Left end manifold base - Side port
- M Left end manifold base - Bottom port
- N Right end manifold base - Side port
- P Right end manifold base - Bottom port

Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold and middle station manifolds (options "J" or "K").

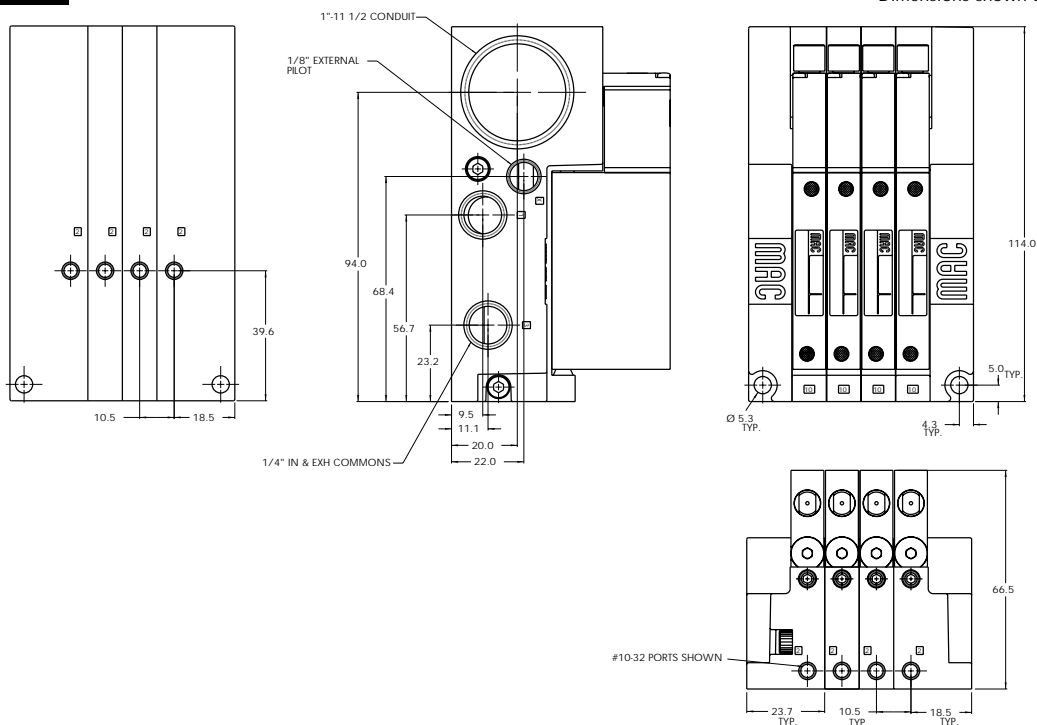
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M5 : 350 NI/min (Cv 0,35) - M7 : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



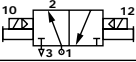
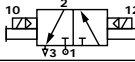
Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
3/2 NO-NC	M5, M7	400 NI/min	Sub-base/ manifold base non "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve
			
Valve less base	Internal	32A-BMA-000-Lxxx-xxx	32A-AMA-000-Lxxx-xxx
	External	32A-BMB-000-Lxxx-xxx	32A-AMB-000-Lxxx-xxx
M5	Internal	32A-BMA-GAL-Lxxx-xxx	32A-AMA-GAL-Lxxx-xxx
	External	32A-BMB-GAM-Lxxx-xxx	32A-AMB-GAM-Lxxx-xxx
M7	Internal	32A-BMA-LAL-Lxxx-xxx	32A-AMA-LAL-Lxxx-xxx
	External	32A-BMB-LAM-Lxxx-xxx	32A-AMB-LAM-Lxxx-xxx

Note : Above codes are for individual base and side port.

LATCHING SOLENOID OPERATOR >

L XXX-XXX*			
XX Voltage	X Wire length	X Manual operator	XX Electrical connection**
DF 24 V=4,0W	A 45 cm	0 No operator	BA 2 Wire Flying leads
HA 24 V=1,95W	B 60 cm		BJ 4 Wire Flying leads
	C 90 cm		KA 2 Wire Plug-in Assembly
			KE 4 Wire Plug-in Assembly
			LA 3 Wire plug-in assembly (Polarity Switching Cover)

* Click here for other options available.

** Latching 32 series with non plug-in base configuration must use "B", "K" or "L" type electrical connector.

OPTIONS

Pilot/Base Configuration :

32A-xMx-xAx-Lxxx-xxx

- A Individual base – Side port
- B Individual base – Bottom port
- J Manifold base – Side port
- K Manifold base – Bottom port
- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust (not available with external pilot)

Note : Manifold assemblies require an end plate kit: M-32003-01-01P (internal pilot)
M-32003-02-01P (external pilot)

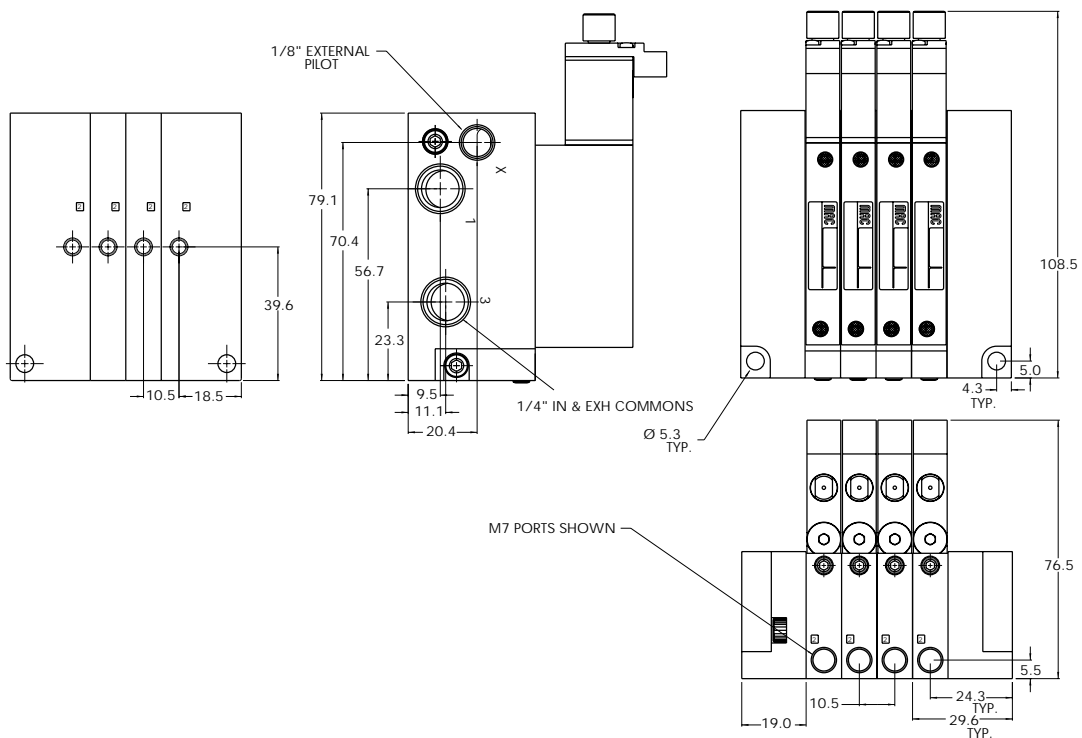
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M5 : 350 NI/min (Cv 0,35) - M7 : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.95 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



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

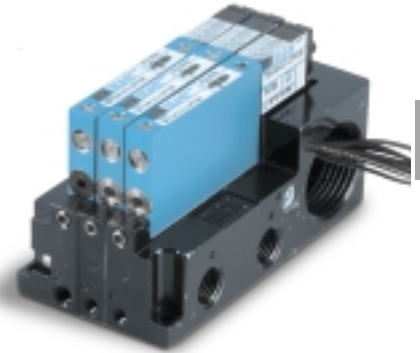


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
3/2 NO-NC	M5, M7	400 NI/min	Sub-base/ manifold base "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10.5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve
Valve less base	Internal	32A-BMA-000-LxxP-xxx	32A-AMA-000-LxxP-xxx
	External	32A-BMB-000-LxxP-xxx	32A-AMB-000-LxxP-xxx
M5	Internal	32A-BMA-GAA-LxxP-xxx	32A-AMA-GAA-LxxP-xxx
	External	32A-BMB-GAB-LxxP-xxx	32A-AMB-GAB-LxxP-xxx
M7	Internal	32A-BMA-LAA-LxxP-xxx	32A-AMA-LAA-LxxP-xxx
	External	32A-BMB-LAB-LxxP-xxx	32A-AMB-LAB-LxxP-xxx

Note : Above codes are for individual base and side port.

LATCHING SOLENOID OPERATOR >

L XX P-XXX*

XX	Voltage	X	Manual operator	XX	Electrical connection**
DF	24 V= /4,0W	0	No operator	DA	Base/Manifold Plug-in
HA	24 V= /1,95W			DB	Base/Manifold Plug-in w/ Ground
				DC	Base/Manifold Plug-in w/ Light
				DD	Base/Manifold Plug-in w/ Light and Ground
				EA	Base/Manifold Plug-in 3 Pin (Polarity Switching Cover)

* Click here for other options available.

**2 and 4 wire base must use "D" type electrical connector, 3 wire base must use "EA" type electrical connector.

OPTIONS

Manifold/Base Configuration :

32A-xMx-xAx-LxxP-xxx

- A Individual base - Side port
- B Individual base - Bottom port
- J Manifold base - Side port
- K Manifold base - Bottom port
- L Left end manifold base - Side port
- M Left end manifold base - Bottom port
- N Right end manifold base - Side port
- P Right end manifold base - Bottom port

- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust (not available with external pilot)

Base Int./Ext. Pilot :

32A-xxx-xxA-LxxP-xxx

- A Plug-In Int. Pilot (2 Wire)**
- B Plug-In Ext. Pilot (2 Wire)**
- C Plug-In Int. Pilot (3 Wire)**
- D Plug-In Ext. Pilot (3 Wire)**
- E Plug-In Int. Pilot (4 Wire)**
- F Plug-In Ext. Pilot (4 Wire)**

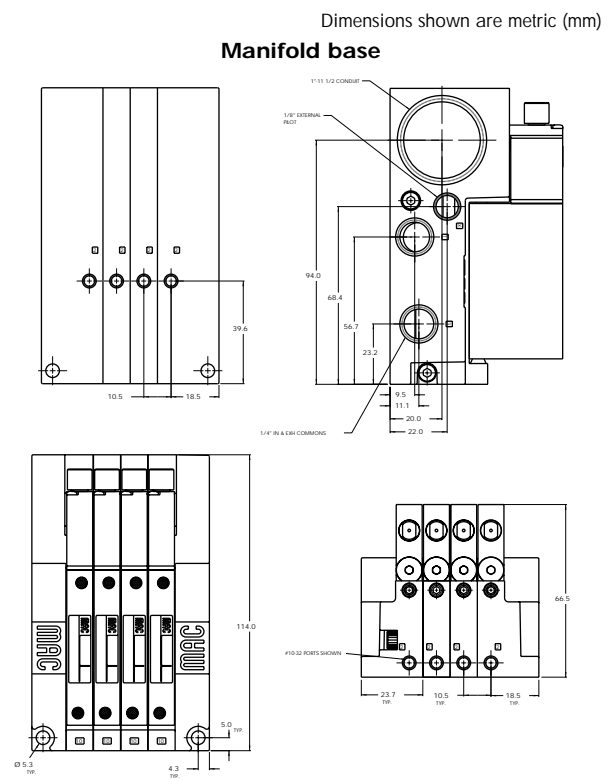
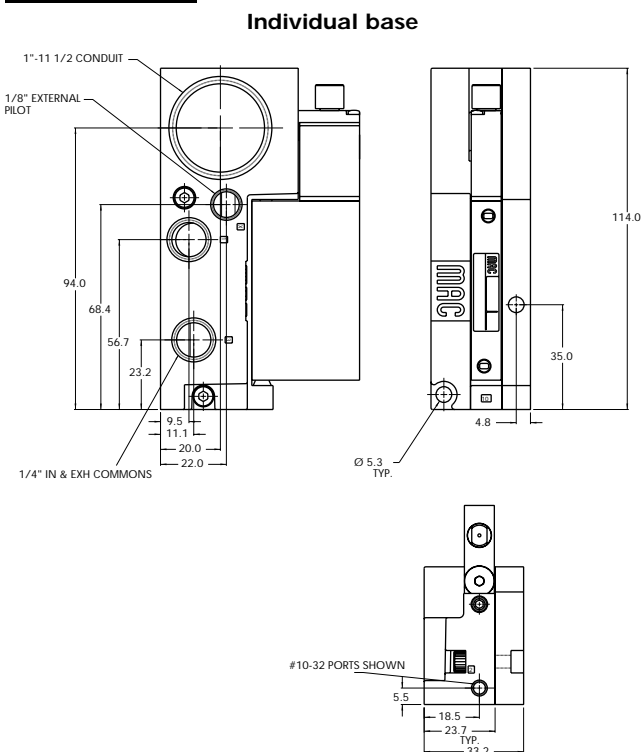
Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (option J or K).

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M5 : 350 NI/min (Cv 0,35) - M7 : 400 NI/min (Cv 0,40)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 5 ms De-energize : 5 ms

Options : • NPT threads

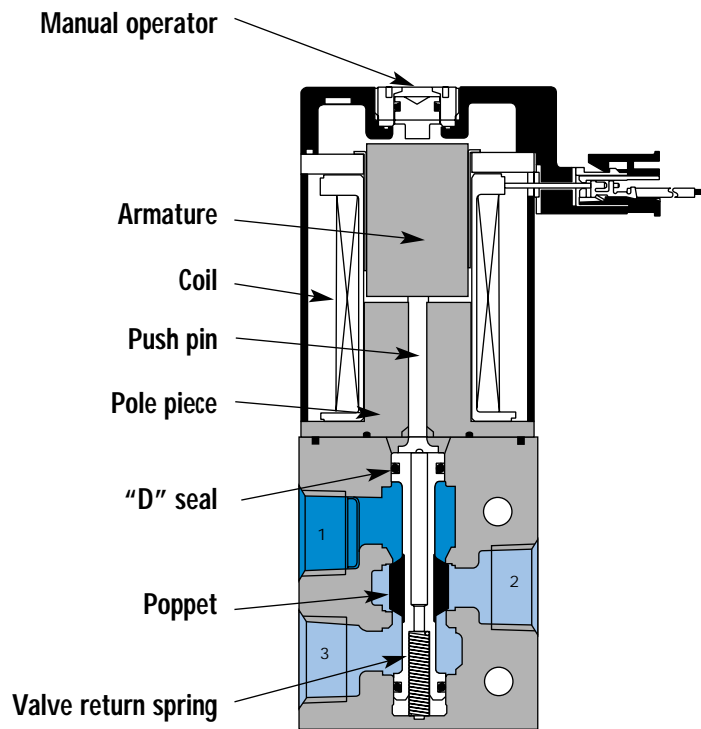
DIMENSIONS



Individual mounting

Series

Inline	Sub-base non plug-in	Series
		34
		36
		32
		37
		38
		52
		67
		44
		46
		42
		47
		48
		400
		92
		93
		ISO 1
		ISO 2
		ISO 3



SERIES FEATURES

- Balanced poppet equals consistent high shifting forces.
- Valve shifting forces are consistent and independent of pressure fluctuations.
- High solenoid and return spring forces ensure high speed and precise repeatability.
- Built-in wear compensation - valve stroke is shorter than solenoid stroke.
- Constant high flow maintained throughout the pressure range.
- Exhaust contaminants are isolated from the solenoid.
- Full flow exhaust.
- Universal porting - 6 functions in one valve.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	G1/8" - G1/4"	500 NI/min	Inline	

OPERATIONAL BENEFITS

- Balanced poppet equals consistent high shifting forces.
- Valve shifting forces are consistent and independent of pressure fluctuations.
- High solenoid and return spring forces ensure high speed and precise repeatability.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Constant high flow maintained throughout the pressure range.
- Exhaust contaminants are isolated from the solenoid.
- Full flow exhaust.
- Universal porting – 6 functions in one valve.



HOW TO ORDER

Port size	Universal valve	NC only valve
G1/8"	37A-AC0-H xxx-xxx	37A-BC0-H xxx-xxx
G1/4"	37A-AD0-H xxx-xxx	37A-BD0-H xxx-xxx

SOLENOID OPERATOR ►

H **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
AA	120 V~/6,7W	A	45 cm	1	Non-locking	MA	Mini connector
DA	24 V~/5,2W	B	60 cm	2	Locking	MC	Mini connector with light
DB	24 V~/2,4W					BA	Flying leads
DC	24 V~/1,8W					BC	Flying leads with light
						HA	Mini connector with rectifier & light

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

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ISO 1

ISO 2

ISO 3

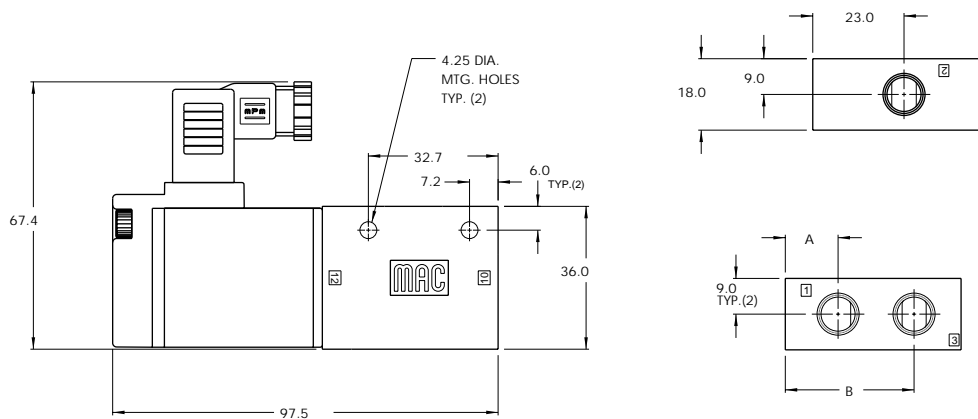
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow :	5,2 W : 500 NI/min (Cv 0,5) – 2,4 W : 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2 W – 2,4 W
Response times : (with 5,2 W coil)	Energize : 16,9 ms De-energize : 6,7 ms

Options : • NPTF ports

DIMENSIONS

Dimensions shown are metric (mm)



Dim	A	B
1/8"	13.3	32.45
1/4"	14.7	33.7



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	G1/8" - G1/4"	500 NI/min	Sub-base non plug-in	

OPERATIONAL BENEFITS

- Balanced poppet equals consistent high shifting forces.
- Valve shifting forces are consistent and independent of pressure fluctuations.
- High solenoid and return spring forces ensure high speed and precise repeatability.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Constant high flow maintained throughout the pressure range.
- Exhaust contaminants are isolated from the solenoid.
- Full flow exhaust.
- Universal porting – 6 functions in one valve.



HOW TO ORDER

Port size	Universal valve	NC only valve
Valve less base	37A-C10-H xxx-xxx	37A-D10-H xxx-xxx
G1/8"	37A-CCA-H xxx-xxx	37A-DCA-H xxx-xxx
G1/4"	37A-CDA-H xxx-xxx	37A-DDA-H xxx-xxx

SOLENOID OPERATOR ▶

H **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V~/6,7W	A	45 cm	1	Non-locking	MA	Plug-in wire assembly
DA	24 V~/5,2W	B	60 cm	2	Locking	MC	Plug-in wire assembly with light
DB	24 V~/2,4W					BA	Flying leads
DC	24 V~/1,8W					BC	Flying leads with light
						HA	Plug-in wire assembly with rectifier & light

Note : AC voltage requires connector with rectifier.
 * Click here for other options available.

OPTIONS

Base only :

- 37A-OCA (1/8")
- 37A-ODA (1/4")

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ISO 1

ISO 2

ISO 3

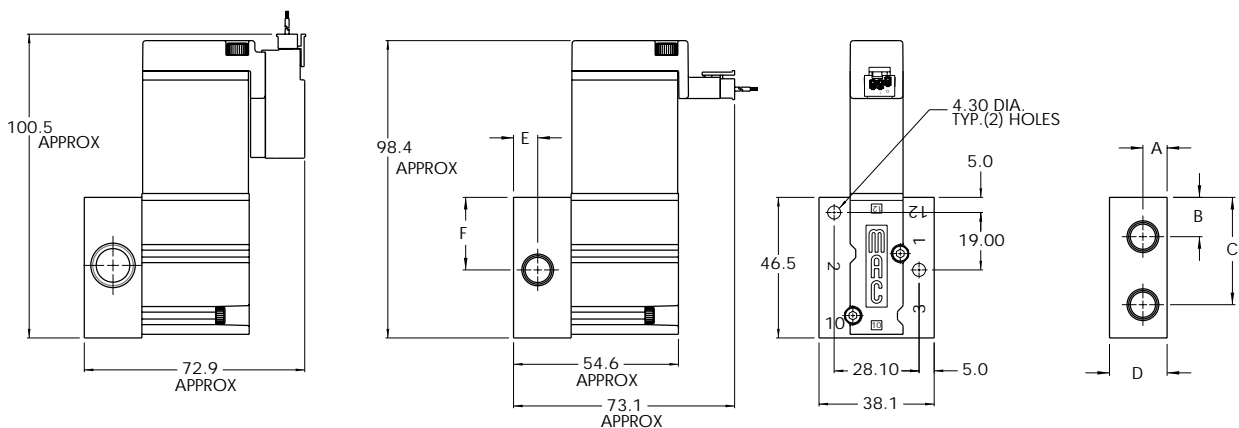
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow :	5,2 W : 500 NI/min (Cv 0,5) – 2,4 W : 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2 W – 2,4 W
Response times : (with 5,2 W coil)	Energize : 16,9 ms De-energize : 6,7 ms

Options : • NPTF ports

DIMENSIONS

Dimensions shown are metric (mm)



RECTIFIER COVER OPTION
(SHOWN WITH 1/4" PORTS)

FLYING LEAD OPTION
(SHOWN WITH 1/8" PORTS)

Dim	A	B	C	D	E	F
1/8"	8.0	13.0	35.5	19.05	8.0	24.0
1/4"	9.5	9.5			9.5	22.5

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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Series

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Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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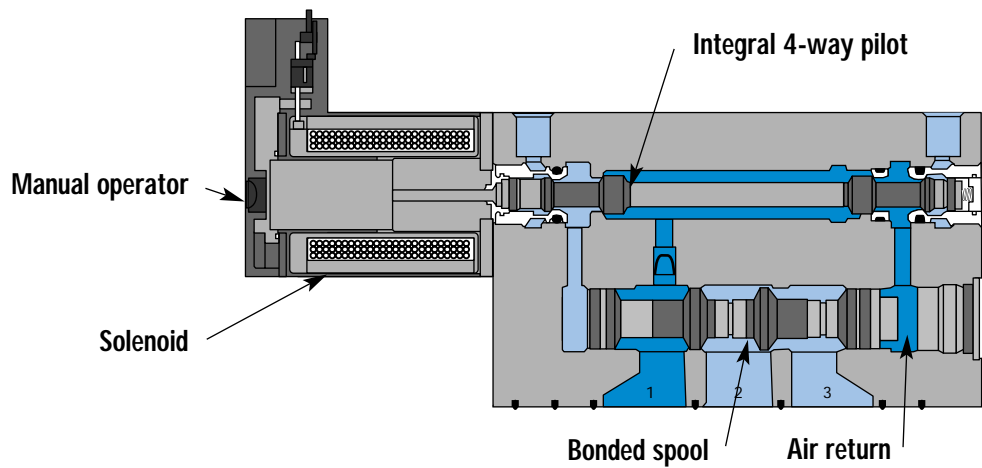
92

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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- High force MACSOLENOID[®].
- Integral 4-way pilot design.
- Internal or external pilot.
- Normally open or normally closed function.
- Universal function (external pilot).
- Rectified AC voltage.
- Latching solenoid technology.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	38A-BMA-000-Gxxx-xxx	38A-AMA-000-Gxxx-xxx	
	External	38A-BMB-000-Gxxx-xxx	38A-AMB-000-Gxxx-xxx	38A-GMB-000-Gxxx-xxx
G1/8"	Internal	38A-BMA-BAL-Gxxx-xxx	38A-AMA-BAL-Gxxx-xxx	
	External	38A-BMB-BAM-Gxxx-xxx	38A-AMB-BAM-Gxxx-xxx	38A-GMB-BAM-Gxxx-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
AA	120 V~/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V~/1,0W	B	60 cm	2	Locking	BT	Flying leads with light
DC	24 V~/1,8W	C	90 cm			KA	Mini connector
DD	24 V~/2,5W					KT	Mini connector with light
DF	24 V~/4,0W					KD	Mini connector with rectifier & light & ground

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 38 series with non plug-in base configuration must use type "B" or "K" electrical connector
Latching solenoid also available, click here.

OPTIONS

Pilot/Base Configuration :

38A-x**M**x-x**A**x-Gxxx-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- M** Pilot exhaust muffled
- R** Pilot exhaust piped M5
- U** Pilot exhaust to main exhaust

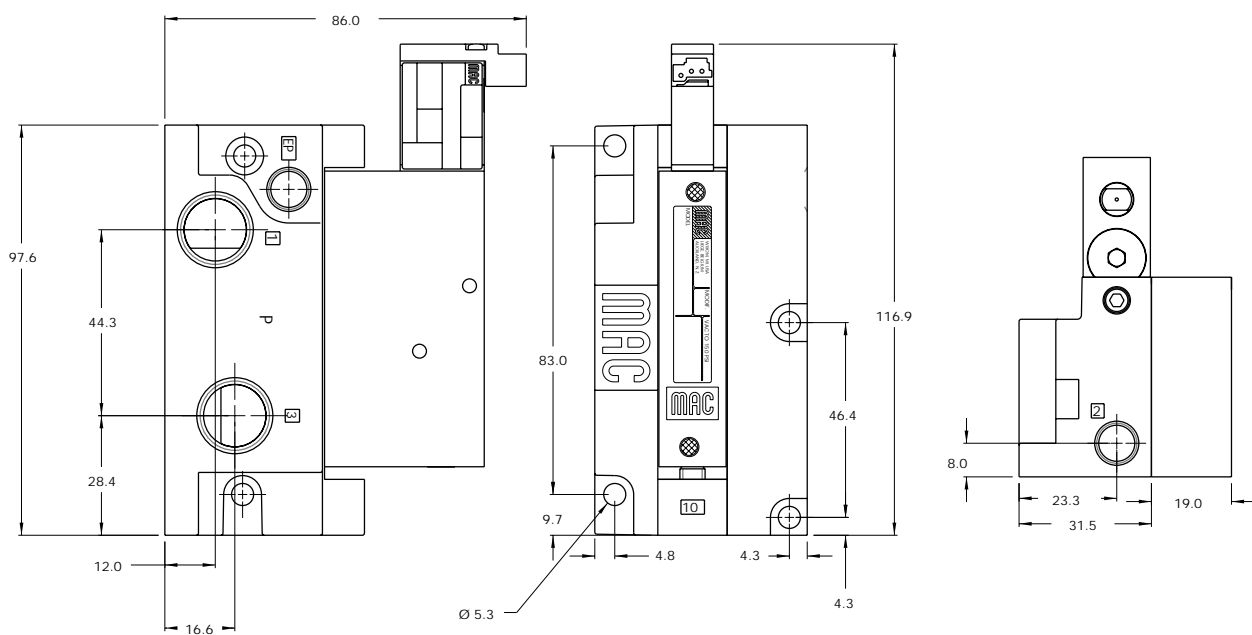
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port: 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	38A-BMA-000-GxxP-xxx	38A-AMA-000-GxxP-xxx	
	External	38A-BMB-000-GxxP-xxx	38A-AMB-000-GxxP-xxx	38A-GMB-000-GxxP-xxx
G1/8"	Internal	38A-BMA-BAA-GxxP-xxx	38A-AMA-BAA-GxxP-xxx	
	External	38A-BMB-BAB-GxxP-xxx	38A-AMB-BAB-GxxP-xxx	38A-GMB-BAB-GxxP-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection**
AA	120 V-/2,5W	1	Non-locking	DJ	Base plug-in
DA	24 V-/1,0W	2	Locking	DT	Base plug-in with light
DC	24 V-/1,8W			DD	Base plug-in with rectifier & light & ground
DD	24 V-/2,5W				
DF	24 V-/4,0W				

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 38 series with plug-in base configuration must use type "D" electrical connector.

Latching solenoid also available, click here.

OPTIONS

Pilot/Base Configuration :

38A-**M**x-**A**x-GxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- M** Pilot exhaust muffled
- R** Pilot exhaust piped M5
- U** Pilot exhaust to main exhaust

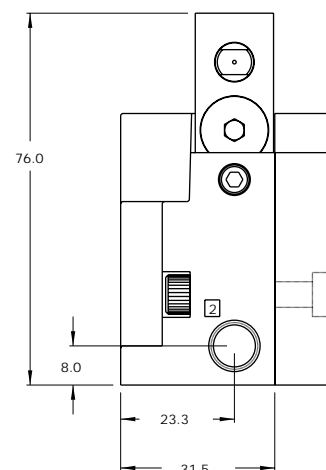
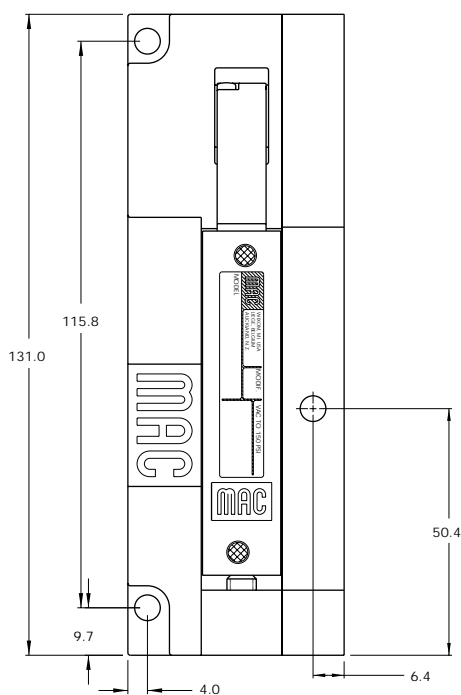
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port : 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Manifold base non "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.

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HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	38A-BMA-000-Gxxx-xxx	38A-AMA-000-Gxxx-xxx	
	External	38A-BMB-000-Gxxx-xxx	38A-AMB-000-Gxxx-xxx	38A-GMB-000-Gxxx-xxx
G1/8"	Internal	38A-BMA-BJL-Gxxx-xxx	38A-AMA-BJL-Gxxx-xxx	
	External	38A-BMB-BJM-Gxxx-xxx	38A-AMB-BJM-Gxxx-xxx	38A-GMB-BJM-Gxxx-xxx

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Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
AA	120 V~/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V~/1,0W	B	60 cm	2	Locking	BT	Flying leads with light
DC	24 V~/1,8W	C	90 cm			KA	Mini connector
DD	24 V~/2,5W					KT	Mini connector with light
DF	24 V~/4,0W					KD	Mini connector with rectifier & light & ground

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Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 38 series with non plug-in base configuration must use type "B" or "K" electrical connector
Latching solenoid also available, click here.

ISO 1

ISO 2

ISO 3

OPTIONS

Base only :

38A-000-xxx (i.e. 38A-000-BJL)

Pilot/Base Configuration :

38A-xMx-xJx-Gxxx-xxx

- J Manifold base – Side port
- K Manifold base – Bottom port
- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust

Note : Manifold assemblies require an end plate kit :
M-38003-01-01P (Internal pilot)
M-38003-02-01P (External pilot)

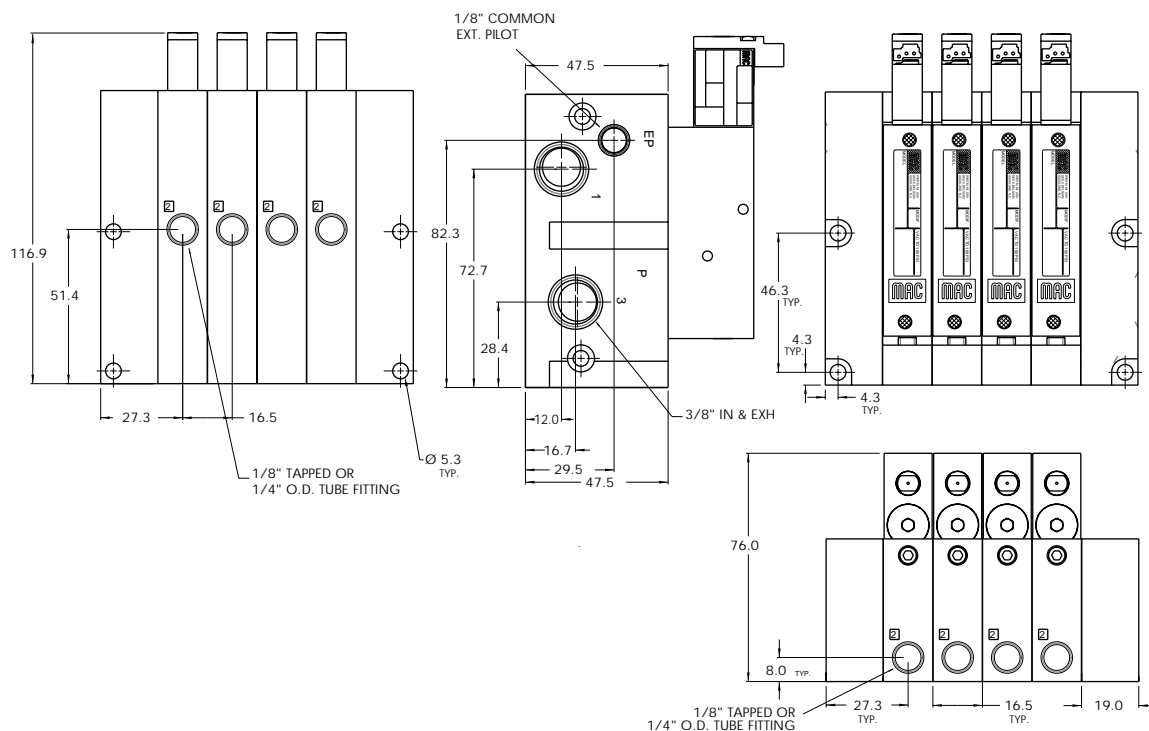
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port : 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



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

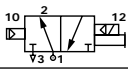
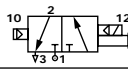
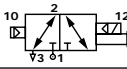
Function	Port size	Flow (Max)	Manifold mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Manifold base "plug-in"	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
				
Valve less base	Internal	38A-BMA-000-GxxP-xxx	38A-AMA-000-GxxP-xxx	
	External	38A-BMB-000-GxxP-xxx	38A-AMB-000-GxxP-xxx	38A-GMB-000-GxxP-xxx
G1/8"	Internal	38A-BMA-BJA-GxxP-xxx	38A-AMA-BJA-GxxP-xxx	
	External	38A-BMB-BJB-GxxP-xxx	38A-AMB-BJB-GxxP-xxx	38A-GMB-BJB-GxxP-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection**
AA	120 V-/2,5W	1	Non-locking	DJ	Base plug-in
DA	24 V-/1,0W	2	Locking	DT	Base plug-in with light
DC	24 V-/1,8W			DD	Base plug-in with rectifier & light & ground
DD	24 V-/2,5W				
DF	24 V-/4,0W				

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

** 38 series with plug-in base configuration must use type "D" electrical connector. Latching solenoid also available, click here.

OPTIONS

Base only :

38A-000-xxx (i.e. 38A-000-BJA)

Base Configuration :

38A-xxx-**J**x-GxxP-xxx

- J Manifold base - Side port
- K Manifold base - Bottom port
- L Left end manifold base - Side port
- M Left end manifold base - Bottom port
- N Right end manifold base - Side port
- P Right end manifold base - Bottom port

Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold and middle station manifolds (options "J" or "K").

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ISO 1

ISO 2

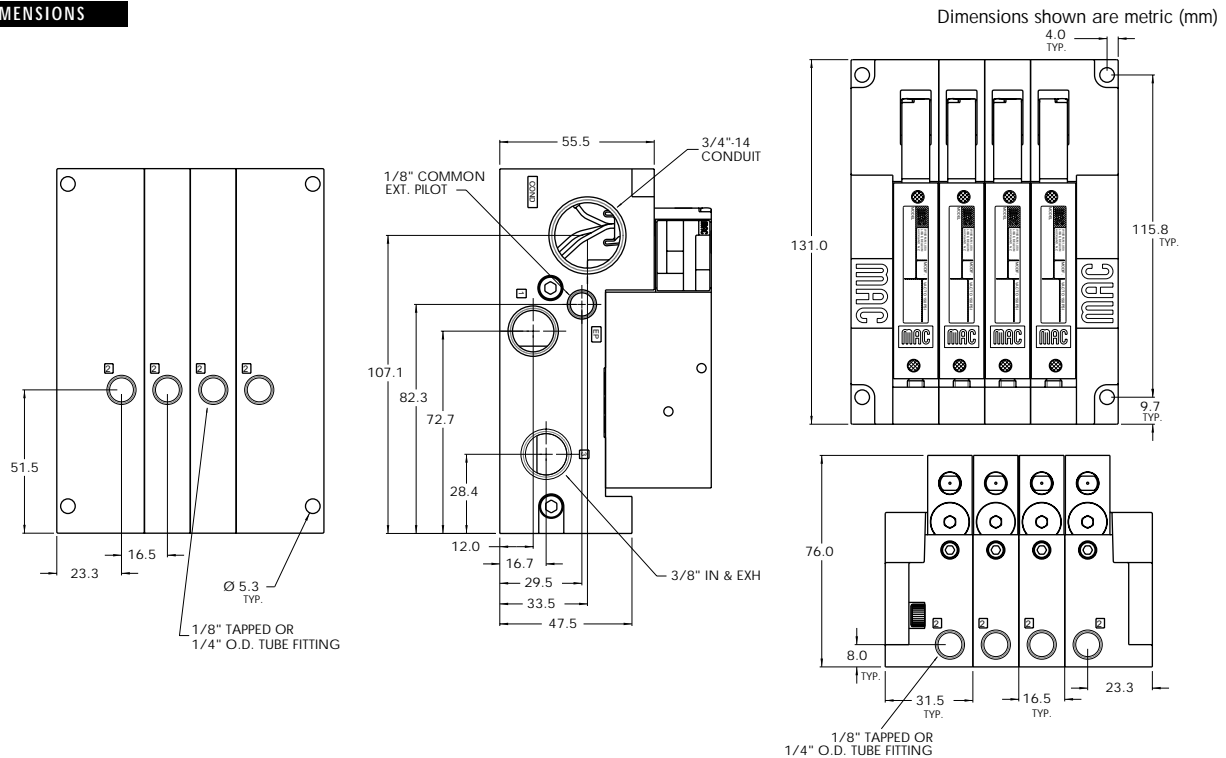
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port : 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS



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



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Sub-base/ manifold base non "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	38A-BMA-000-Lxxx-xxx	38A-AMA-000-Lxxx-xxx	
	External	38A-BMB-000Lxxx-xxx	38A-AMB-000-Lxxx-xxx	38A-GMB-000-Lxxx-xxx
G1/8"	Internal	38A-BMA-BAL-Lxxx-xxx	38A-AMA-BAL-Lxxx-xxx	
	External	38A-BMB-BAM-Lxxx-xxx	38A-AMB-BAM-Lxxx-xxx	38A-GMB-BAM-Lxxx-xxx

Note : Above codes are for individual base and side port.

LATCHING SOLENOID OPERATOR ▶

L **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection**
DF	24 V=4,0W	A	45 cm	0	No operator	BA	2 Wire Flying leads
HA	24 V=1,95W	B	60 cm			BJ	4 Wire Flying leads
		C	90 cm			KA	2 Wire Plug-in Assembly
						KE	4 Wire Plug-in Assembly
						LA	3 Wire plug-in assembly (Polarity Switching Cover)

* Click here for other options available.

** Latching 38 series with non plug-in base configuration must use "B", "K" or "L" type electrical connector.

OPTIONS

Pilot/Base Configuration :

38A-xMx-xAx-Lxxx-xxx

- A Individual base – Side port
- B Individual base – Bottom port
- J Manifold base – Side port
- K Manifold base – Bottom port
- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust

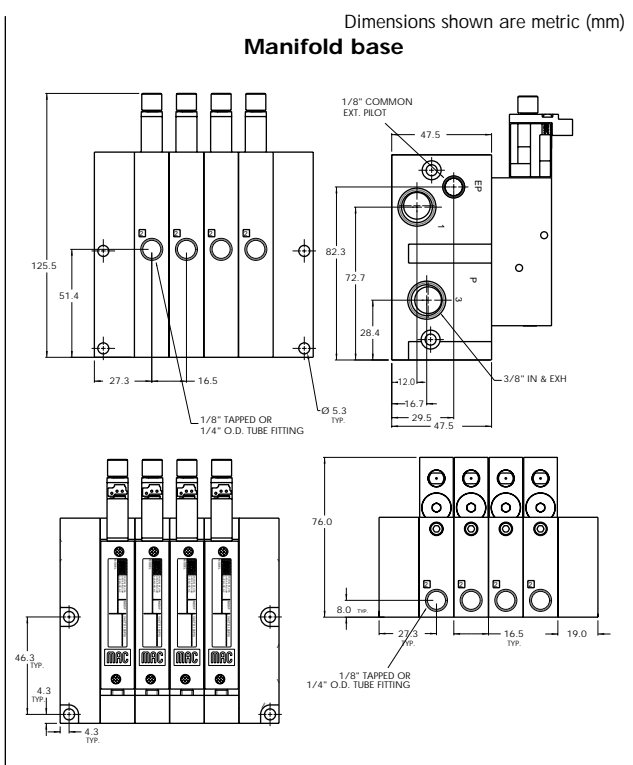
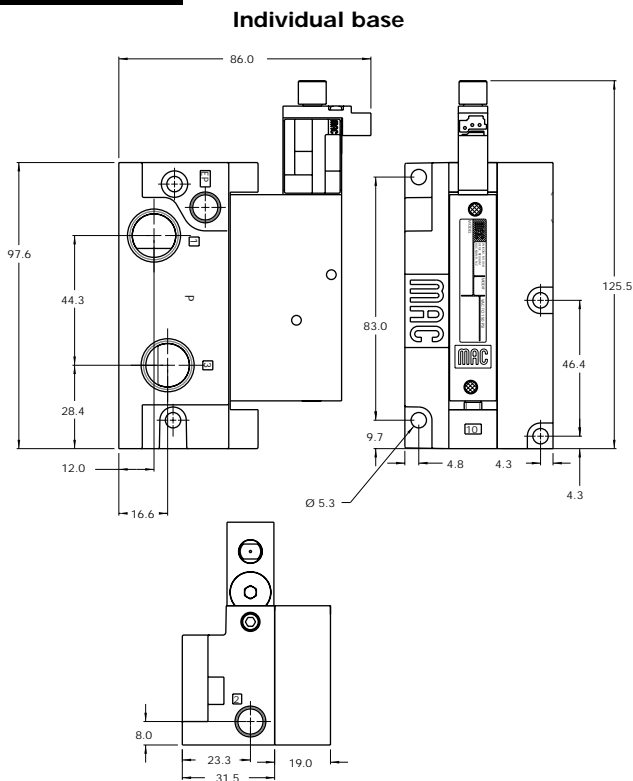
Note : Manifold assemblies require an end plate kit :
M-38003-01-01P (internal pilot)
M-38003-02-01P (external pilot)

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port : 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.95 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS



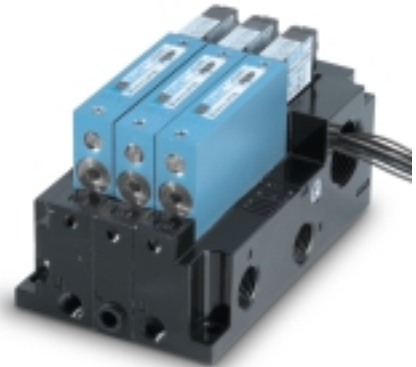


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
3/2 NO-NC	G1/8"	1200 NI/min	Sub-base/ manifold base "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 3-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1200 NI/min).
4. Fast, repeatable response times.
5. Maximum shifting forces in both directions.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
Valve less base	Internal	38A-BMA-000-LxxP-xxx	38A-AMA-000-LxxP-xxx	
	External	38A-BMB-000LxxP-xxx	38A-AMB-000-LxxP-xxx	38A-GMB-000-LxxP-xxx
G1/8"	Internal	38A-BMA-BAA-LxxP-xxx	38A-AMA-BAA-LxxP-xxx	
	External	38A-BMB-BAB-LxxP-xxx	38A-AMB-BAB-LxxP-xxx	38A-GMB-BAB-LxxP-xxx

Note : Above codes are for individual base and side port.

LATCHING SOLENOID OPERATOR >

L **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection**
DF	24 V=/4,0W	0	No operator	DA	Base/Manifold Plug-in
HA	24 V=/1,95W			DB	Base/Manifold Plug-in w/Ground
				DC	Base/Manifold Plug-in w/ Led
				DD	Base/Manifold Plug-in w/ Led and Ground
				EA	Base/Manifold Plug-in 3 Pin (Polarity Switching Cover)

* Click here for other options available.

** 2 and 4 wire bases must use "D" type electrical connector.
3 wire bases must use "EA" type electrical connector.

OPTIONS

Manifold/Base Configuration :

38A-xxx-x**A**x-LxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- J** Manifold base – Side port
- K** Manifold base – Bottom port
- L** Left end manifold base - Side port
- M** Left end manifold base - Bottom port
- N** Right end manifold base - Side port
- P** Right end manifold base - Bottom port

Manifold/Base Int./Ext. Pilot : (Wire options)

38A-xxx-xx**A**-LxxP-xxx

- A** Plug-In Int. Pilot (2 Wire)**
- B** Plug-In Ext. Pilot (2 Wire)**
- C** Plug-In Int. Pilot (3 Wire)**
- D** Plug-In Ext. Pilot (3 Wire)**
- E** Plug-In Int. Pilot (4 Wire)**
- F** Plug-In Ext. Pilot (4 Wire)**

Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (option J or K).

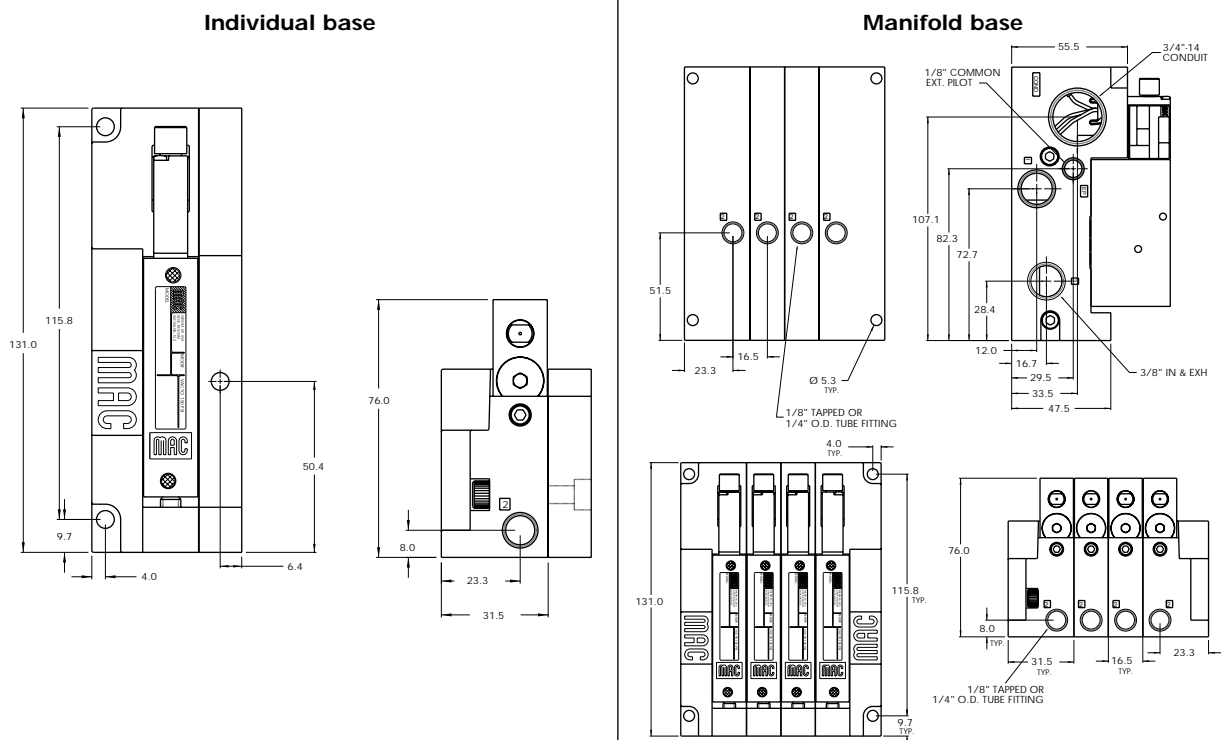
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : Vacuum to 8 bar
Pilot pressure :	1,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NI/min (Cv 1,2) - G1/8" side port: 1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.95 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options : • NPTF threads

DIMENSIONS

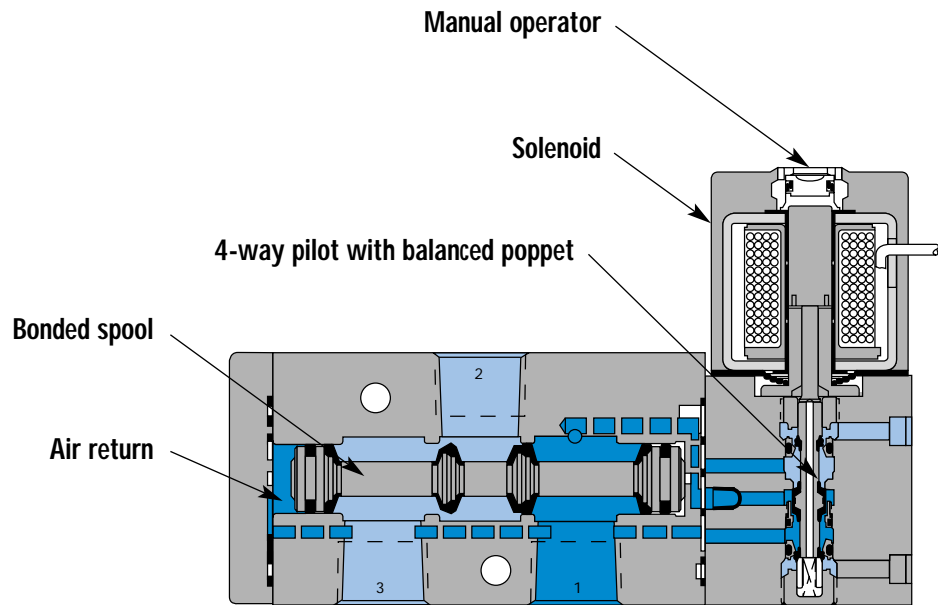
Dimensions shown are metric (mm)



Individual mounting

Series

Inline



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ISO 1

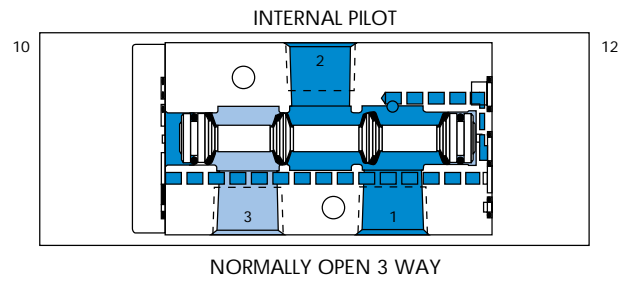
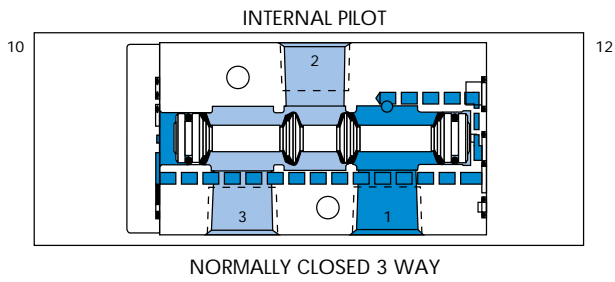
ISO 2

ISO 3

SERIES FEATURES

- Patented MACSOLENOID[®] for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Various manual operators.
- Optional memory spring.
- Normally closed or normally open valve function.
- May be plugged for 2-way operation.
- Internal or external pilot.

SPOOL CONFIGURATIONS



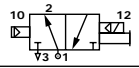
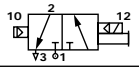
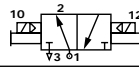
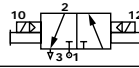
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G1/8" - G1/4"	1500 NI/min	Inline	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting force both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow, short and consistent response times.
7. Wiping effect eliminates sticking.
8. Long service life.



HOW TO ORDER

Port size	Pilot air	Single Operator		Double Operator	
		NO Valve	NC Valve	NO Valve	NC Valve
					
G1/8"	Internal	52A-31-C0A-XX-X-xxx-xxx	52A-11-C0A-XX-X-xxx-xxx	52A-41-C0A-XX-X-xxx-xxx	52A-21-C0A-XX-X-xxx-xxx
G1/4"		52A-31-D0A-XX-X-xxx-xxx	52A-11-D0A-XX-X-xxx-xxx	52A-41-D0A-XX-X-xxx-xxx	52A-21-D0A-XX-X-xxx-xxx
G1/8"	External	52A-31-C0B-XX-X-xxx-xxx	52A-11-C0B-XX-X-xxx-xxx	52A-41-C0B-XX-X-xxx-xxx	52A-21-C0B-XX-X-xxx-xxx
G1/4"		52A-31-D0B-XX-X-xxx-xxx	52A-11-D0B-XX-X-xxx-xxx	52A-41-D0B-XX-X-xxx-xxx	52A-21-D0B-XX-X-xxx-xxx

SOLENOID OPERATOR >

DM-D **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm (Flying leads)	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V= /1,8W					JD	Rectangular connector with light
DA	24 V= /5,4W					BA	Flying leads
DF	24 V= /12,7W						

SOLENOID OPERATOR >

GM-G **xxx-xxx****

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DC	24 V= /1,8W	A	45 cm	1	Non-locking	BA	Flying leads
DD	24 V= /2,5W	B	60 cm	2	Locking	BT	Flying leads with light
DF	24 V= /4W	C	90 cm			KA	Mini connector
						KT	Mini connector with light

* Click here for other options available.

** Click here for other options available.

OPTIONS

52A-31-C0A-XX-X-xxx-xxx

For memory spring, replace by **4** (single solenoid only)

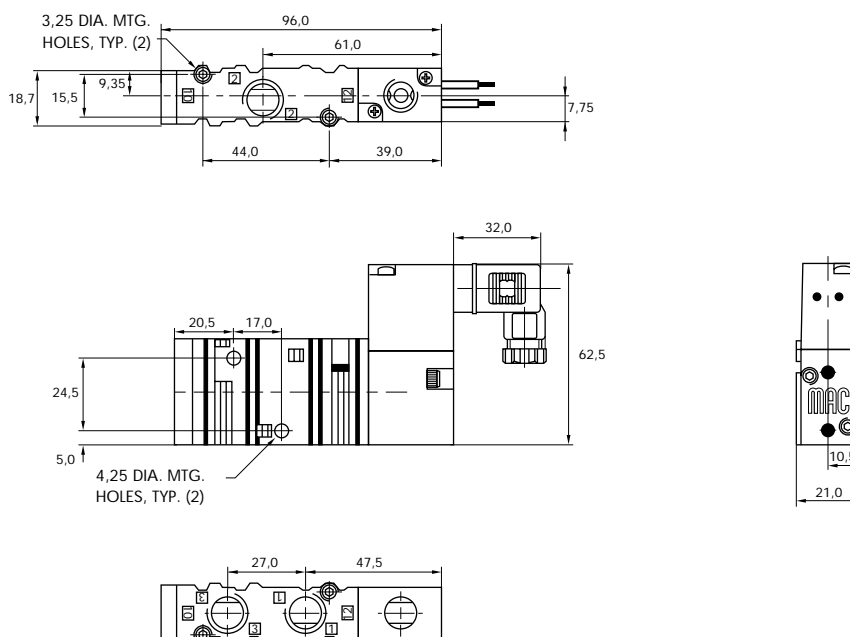
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 8 bar External Pilot : 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
Orifice :	7,3 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 1200 NI/min (Cv 1,2) – G1/4" : 1500 NI/min (Cv 1,5)
Coil :	Epoxy encapsulated – class A wires – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (GM pilot) – IP64 (DM pilot) (electrical connection)
Power :	-Inrush: 10,9 VA Holding: 7,7 VA = 1,8 to 12,7 W
Response times :	24V~/5,4W Energize: 7,3 ms De-energize: 5,3 ms 110V~/50Hz Energize: 8-12 ms De-energize: 7-11 ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Series

Inline

34

36

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400

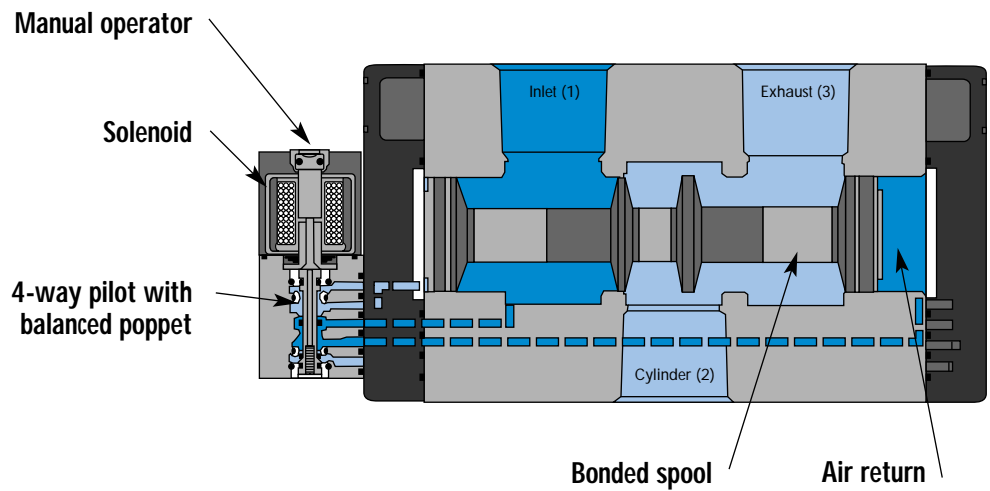
92

93

ISO 1

ISO 2

ISO 3



SERIES FEATURES

- Patented MACSOLENOID[®] for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Normally closed or normally open valve function.
- Optional universal spool.
- Internal or external pilot.
- Optional memory spring.
- Checked accumulator.
- Optional pilot exhaust to main valve exhaust.
- May be plugged for 2-way operation.

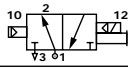
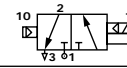
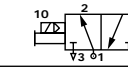
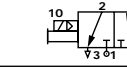
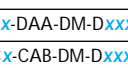
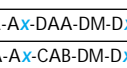
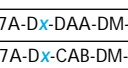
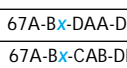
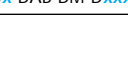

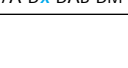
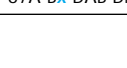



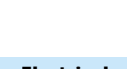
Function	Port size	Flow (Max)	Individual mounting	Series
3/2 NO-NC, 2/2 NO-NC	G3/4" - G1"	20000 NI/min	Inline	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting force both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow, short and consistent response times.
7. Wiping effect eliminates sticking.



HOW TO ORDER

Port size	Pilot air	Single Operator		Double Operator	
		NO Valve	NC Valve	NO Valve	NC Valve
G3/4"	Internal				
G1"		67A-Cx-CAA-DM-Dxxx-xxx	67A-Ax-CAA-DM-Dxxx-xxx	67A-Dx-CAA-DM-Dxxx-xxx	67A-Bx-CAA-DM-Dxxx-xxx
G3/4"	External				
G1"		67A-Cx-DAA-DM-Dxxx-xxx	67A-Ax-DAA-DM-Dxxx-xxx	67A-Dx-DAA-DM-Dxxx-xxx	67A-Bx-DAA-DM-Dxxx-xxx
G3/4"	External				
G1"		67A-Cx-CAB-DM-Dxxx-xxx	67A-Ax-CAB-DM-Dxxx-xxx	67A-Dx-CAB-DM-Dxxx-xxx	67A-Bx-CAB-DM-Dxxx-xxx
G3/4"	External				
G1"		67A-Cx-DAB-DM-Dxxx-xxx	67A-Ax-DAB-DM-Dxxx-xxx	67A-Dx-DAB-DM-Dxxx-xxx	67A-Bx-DAB-DM-Dxxx-xxx

SOLENOID OPERATOR ➤

DM-D xxx-xxx*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V-/1,8W					JD	Rectangular connector with light
DA	24 V-/5,4W					BA	Flying leads
DF	24 V-/12,7W						

* Click here for other options available.

OPTIONS

Spool type :

67A-XX-CAA-DM-Dxxx-yzz

- G Single operator universal spool
- H Double operator universal spool

Spool return :

67A-CX-CAA-DM-Dxxx-yzz

- 1 Standard return
- 2 Standard return with memory spring

Port configuration :

67A-XX-CXA-DM-Dxxx-xxx

- A Standard pilot exhaust
 - B Pilot exhaust to main exhaust*
 - C Pilot exhaust out adapter*
- * Must use DU pilot

Pilot style :

67A-XX-CAA-DM-Dxxx-xxx

- M Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust to main exhaust

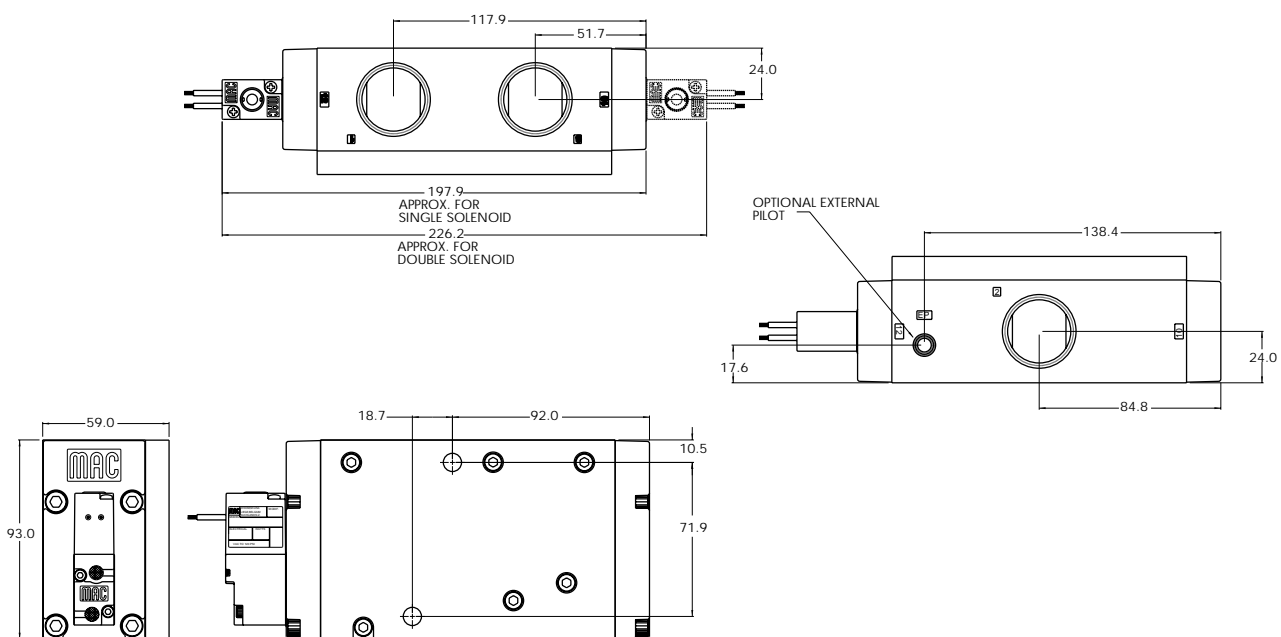
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot : 1,3 to 10 bar External Pilot : 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 +50°C
Orifice :	26,8 mm
Flow (at 6 bar, ΔP=1bar) :	3/4" : 14500 NI/min (Cv 14,5) – 1" : 20000 (Cv 20,0)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush : 7.6 VA Holding : 4.8 VA = 12.7 to 1.0 W
Response times : (with 5,4 W coil)	Energize : 29 ms De-energize : 21 ms

Options : • NPTF threads

DIMENSIONS

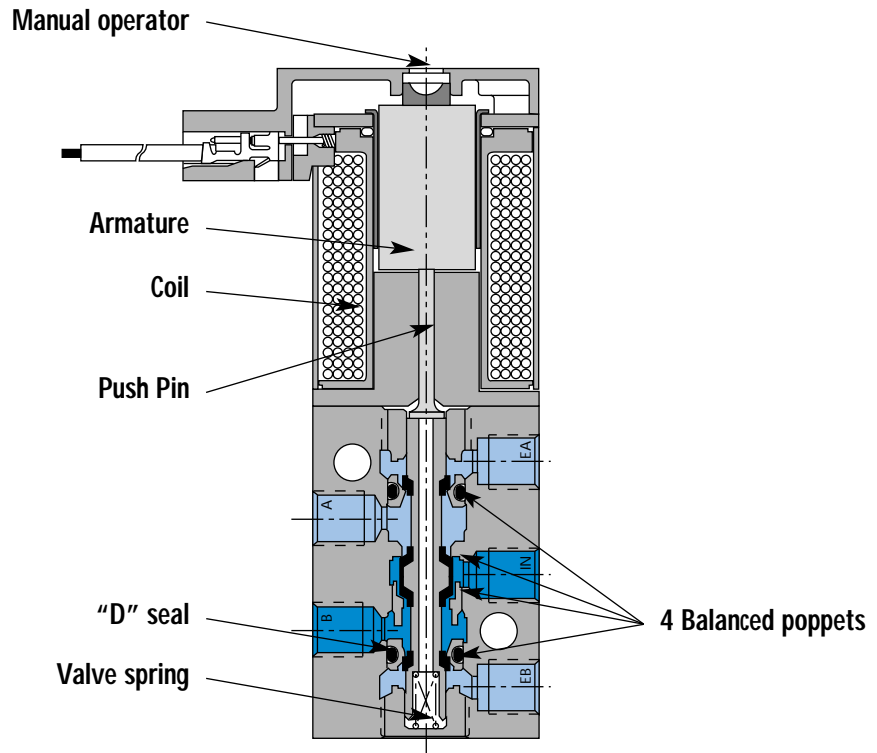
Dimensions shown are metric (mm)



Individual mounting

Series

Inline



SERIES FEATURES

- High force MACSOLENOID[®].
- 10mm direct operated.
- # 10-32 or M5 ports.
- Rated for lubricated or non-lubricated service.
- Cylinder ports in valve or in circuit bar.

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ISO 1

ISO 2

ISO 3



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual Mounting	Series
5/2	M5	100 NI/min	Inline	

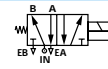
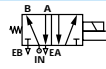
OPERATIONAL BENEFITS

1. 10 mm valve, direct solenoid operated.
2. Balanced poppet, immune to variations of pressure.
3. Short stroke with high flow.
4. The patented solenoid develops high shifting forces.
5. Powerful return spring.
6. Flow is specifically adjusted on each valve.
7. Manual operator standard on all valves.



HOW TO ORDER

Port size	Universal valve	For use with external flow controls
M5	44B-ABA-G xxx-xxx	44B-BBA-G xxx-xxx



SOLENOID OPERATOR >

G **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DA	24 V=/1W	A	45 cm	1	Non-locking	KA	Mini connector
DC	24 V=/1,8W	B	60 cm	2	Locking	KT	Mini connector with light
DD	12 V=/2,5W					BA	Flying leads
DF	24 V=/4,0W					BT	Flying leads with light

* Click here for other options available.

LATCHING SOLENOID >

L **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DF	24 V=/4,0W	A	45 cm	0	No operator	BA	2 Wire flying leads
HA	24 V=/1,95W	B	60 cm			BJ	4 Wire flying leads
		C	90 cm			KA	2 Wire plug-in assembly
						KE	4 Wire plug-in assembly
						LA	3 Wire plug-in assembly (Polarity switching cover)

* Click here for other options available.

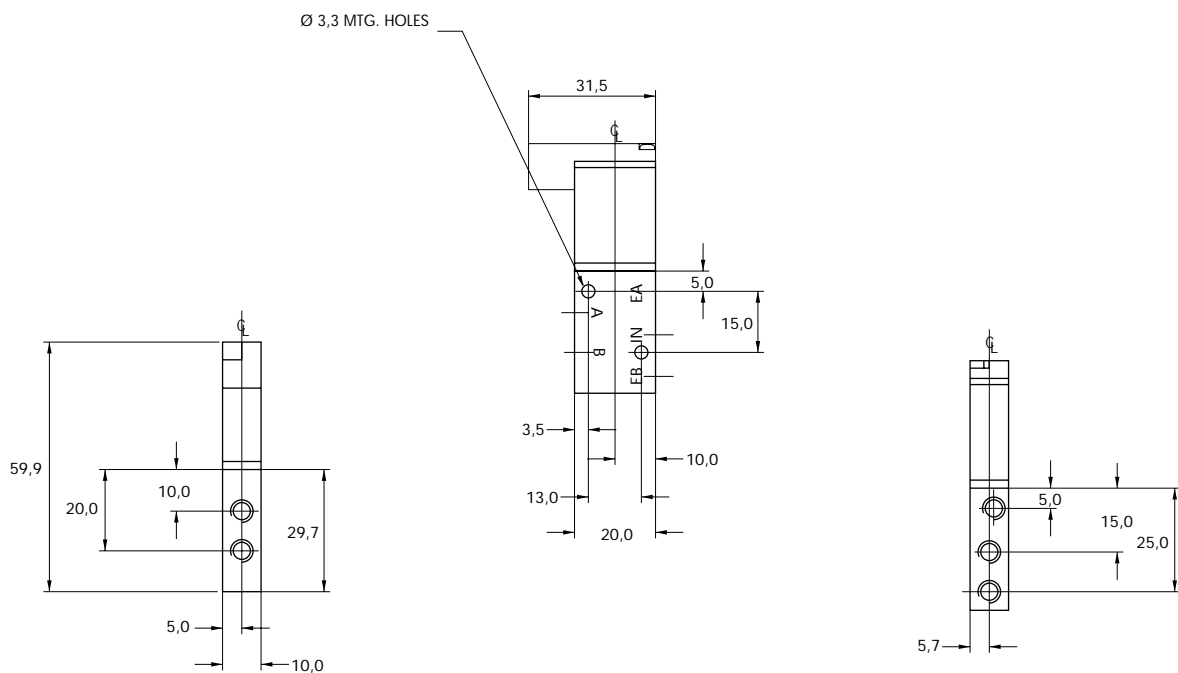
TECHNICAL DATA

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
Orifice :	1,8 mm
Flow (at 6 bar, ΔP=1bar) :	4 W : 100 NI/min (Cv 0,10) – 2,5 W : 80 NI/min (Cv 0,08) – 1,8 W : 60 NI/min (Cv 0,06) – 1,0W : 50 NI/min (Cv 0,05)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	4 W – 2,5 W – 1,8 W – 1,0 W
Response times : (with 4 W coil)	Energize : 3,4 ms De-energize : 1,5 ms

Note : • Valve and coil are not interchangeable.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Inline

Series

Manifold mounting

Stacking	Manifold base "plug-in"	Manifold base "plug-in" with pressure regulators	Manifold base "plug-in" with flow controls	Manifold base "plug-in" with PR & FC
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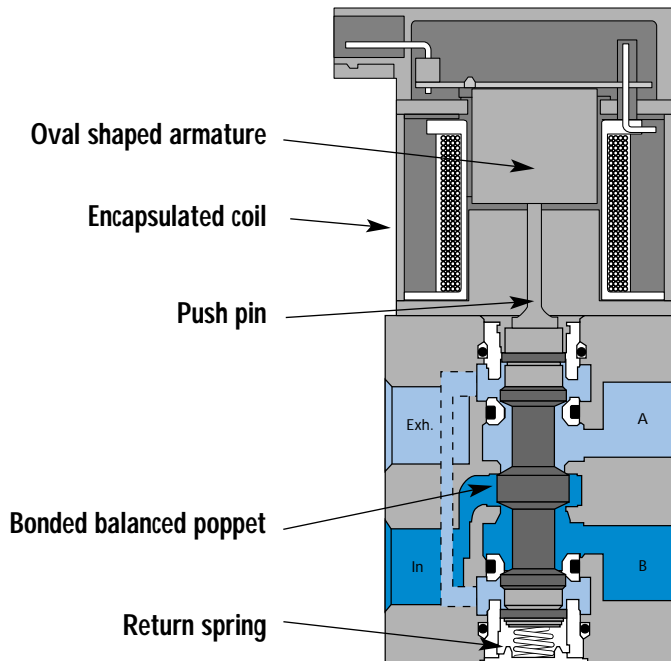
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

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



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
4/2	G1/8" - M5	300 NI/min	Inline	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.



HOW TO ORDER

Port size	Without flow controls	With flow controls
G1/8"	46A-AC1-J xxx-xxx	46A-AC2-J xxx-xxx
M5	46A-AD1-J xxx-xxx	46A-AD2-J xxx-xxx

SOLENOID OPERATOR >

J **xxx-xxx*** (-G) Add "G" for ground

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V~/5,4W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V~/5,4W	B	60 cm	2	Locking	GA	MAC JAC solenoid plug-in
DB	12 V~/5,4W	C	90 cm			GB	MAC JAC solenoid plug-in with diode
DC	24 V~/2,4W					GD	MAC JAC solenoid plug-in with light
DD	12 V~/2,4W					GG	MAC JAC solenoid plug-in with rectifier

* Click here for other options available.

Note : - AC voltage requires connector with rectifier.

- The MAC JAC connector is similar to the connector used for valves that incorporate the "G" type solenoid. With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.

OPTIONS

46A-AC1-Jxxx-xxx

G Use with O ring mount (body option 'D')

A 4 port body with side ports

C 4 port body with bottom ports (no side ports) – M5 ONLY

D Bottom O ring mount – All ports (no side ports)

F Bottom O ring mount – Cylinder ports only – Side inlet & exhaust

Examples : 46A-DG1-Jxxx-xxx (Bottom O ring mount – all ports)
46A-CD1-Jxxx-xxx (4 port body with bottom ports – no side ports)

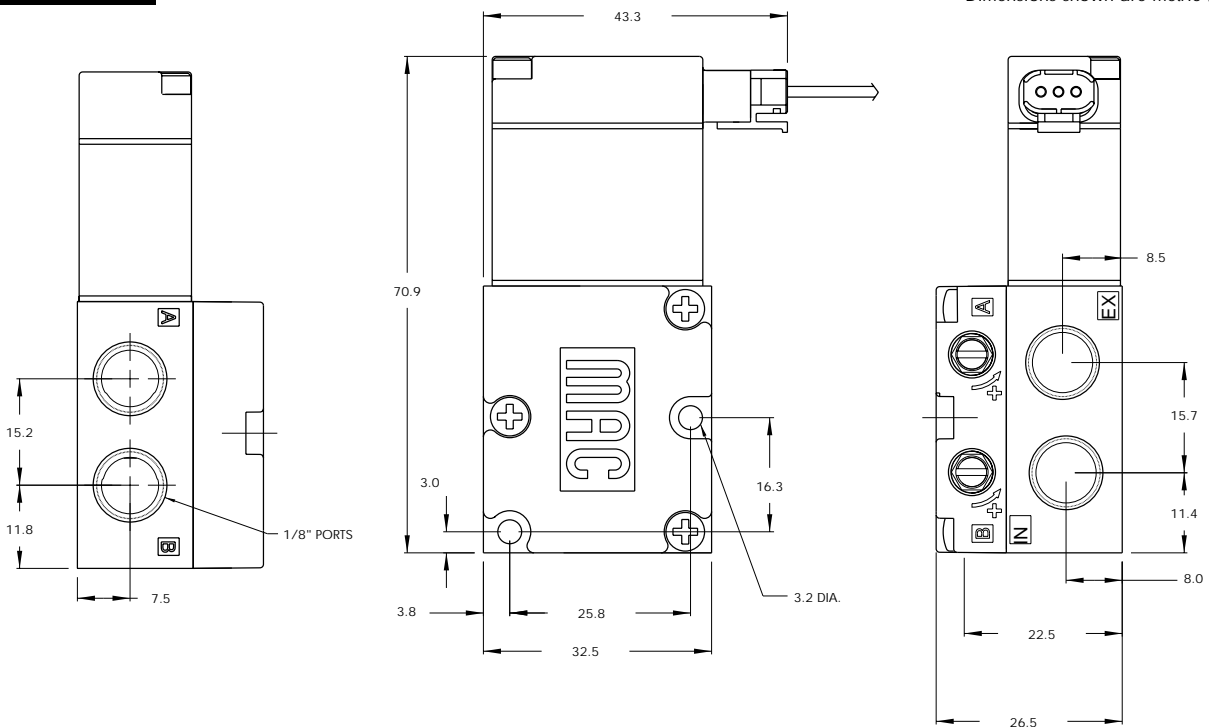
TECHNICAL DATA

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
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

Options : • NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold Mounting	Series
4/2	G1/8" - M5	300 NI/min	Stacking	

OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Without flow controls	With flow controls
G1/8"	46A-SC1-J xxx-xxx	46A-SC2-J xxx-xxx
M5	46A-SD1-J xxx-xxx	46A-SD2-J xxx-xxx

46
42
47

SOLENOID OPERATOR ►

J **xxx-xxx*** (-G) Add "G" for ground

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V~/5,4W	A	45 cm	1	Non-locking	BA	Flying leads
DA	24 V~/5,4W	B	60 cm	2	Locking	GA	MAC JAC solenoid plug-in
DB	12 V~/5,4W	C	90 cm			GB	MAC JAC solenoid plug-in with diode
DC	24 V~/2,4W					GD	MAC JAC solenoid plug-in with light
DD	12 V~/2,4W					GG	MAC JAC solenoid plug-in with rectifier

400
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* Click here for other options available.

Note : - AC voltage requires connector with rectifier.

- The MAC JAC connector is similar to the connector used for valves that incorporate the "G" type solenoid. With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.

End plate kit required (port size 1/4") : M-46001-01P.

ISO 1
ISO 2
ISO 3

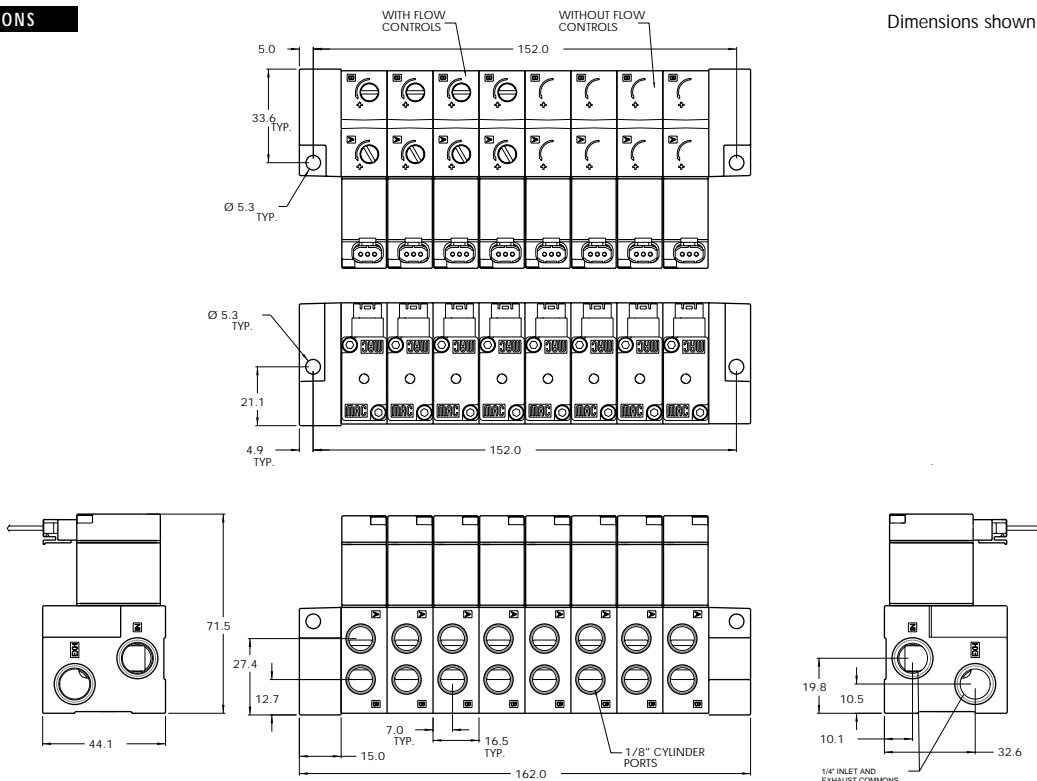
TECHNICAL DATA

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
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

- Options : • NPTF threads
- Spare parts : • Inlet isolator : 28494 • Exhaust isolator : 28493 • Tie rod (x2) : 79411

DIMENSIONS

Dimensions shown are metric (mm)



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



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	G1/8"	300 NI/min	Manifold base "plug-in"	

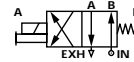
OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Model number
Valve less base	46A-L00-00-J xxP-xxx
G1/8"	46A-LSB-AC-J xxP-xxx



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42
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SOLENOID OPERATOR ▶

J **xxP-xxx*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection
AA 120V~/5,4W	1 Non-locking	FA Base plug-in
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode
DB 12V~/5,4W		FG Base plug-in with rectifier
DC 24V~/2,4W		

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400
92

* Click here for other options available.
Note : AC voltage requires connector with rectifier.

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OPTIONS

46A-LSB-AC-J**xxP-xxx**

- C** Side cylinder ports
- L** Bottom cylinder ports
- O** Base only – no valve
- L** Base mount body
- M** Base mount body with gage port

Example : base only : 46A-OSB-AC.
End plate quit required (port size G1/4") : M-46003-01P.

ISO 1
ISO 2
ISO 3

TECHNICAL DATA

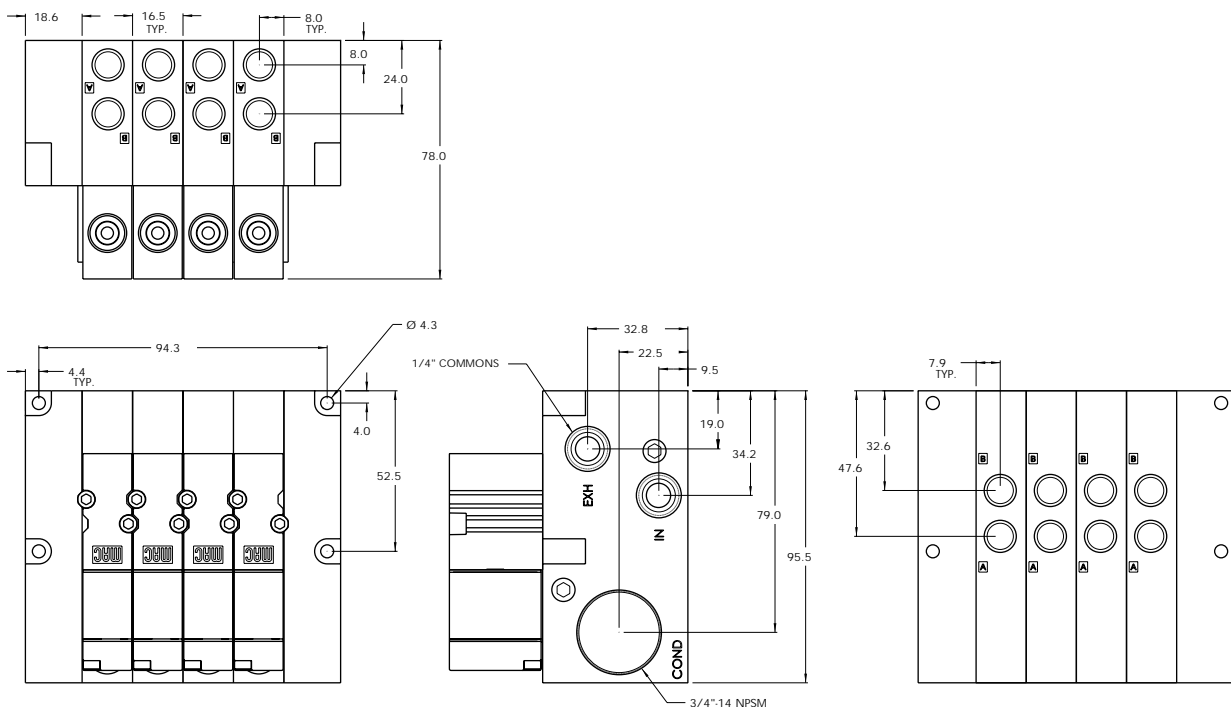
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

Options : • NPTF threads

Spare parts : • Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002
• Tie rod (x2) : 79443

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	G1/8"	300 NI/min	Manifold base "plug-in" with pressure regulators	

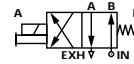
OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Model number
Valve less base	46A-L00-00-J xxP-xxx
G1/8"	46A-LSB-AJ-J xxP-xxx



46
42
47

SOLENOID OPERATOR ▶

J **xxP-xxx*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection
AA 120V~/5,4W	1 Non-locking	FA Base plug-in
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode
DB 12V~/5,4W		FG Base plug-in with rectifier
DC 24V~/2,4W		

48
400
92

* Click here for other options available.
Note : AC voltage requires connector with rectifier.

93

OPTIONS

46A-LSB-AJ-J**xxP-xxx**

- J Regulator with adjusting knob
- E Regulator with slotted stem
- G Regulator with slotted stem with locknut
- O Base only – no valve
- L Base mount body
- M Base mount body with gage port

ISO 1
ISO 2
ISO 3

Example : base only with regulator : 46A-0SB-AJ.
End plate quit required (port size G1/4") : M-46003-01P.

TECHNICAL DATA

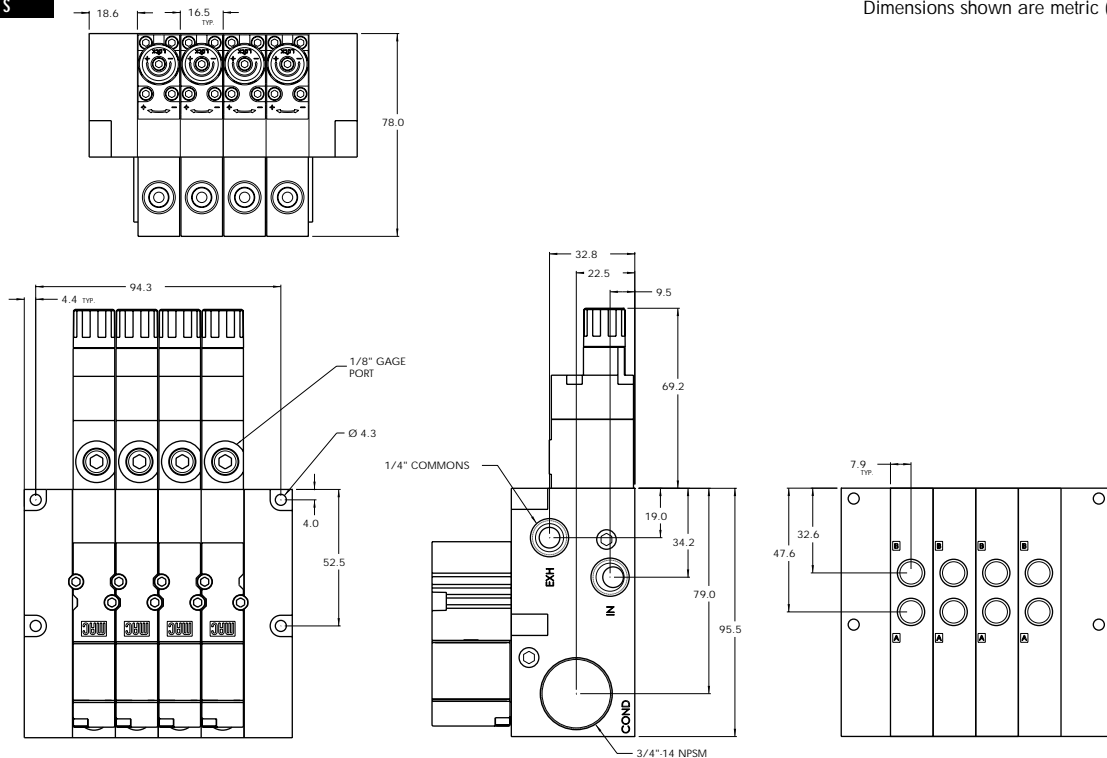
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

- Options :
- NPTF threads
- Spare parts :
- Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002 • Tie rod (x2) : 79443
 - Replacement regulators : PR46A-OAAA (slotted stem)
PR46A-OBAA (adjusting knob)
PR46A-OCAA (slotted stem with locknut)

- Regulating range options :
- PR46A-xxx**A**
 - A** 0 to 8 bar
 - B** 0 to 5,3 bar
 - C** 0 to 2 bar

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	G1/8"	300 NI/min	Manifold base "plug-in" with flow controls	

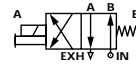
OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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67
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HOW TO ORDER

Port size	Model number
Valve less base	46A-L00-00-J xxP-xxx
G1/8"	46A-LSB-AD-J xxP-xxx



46
42
47

SOLENOID OPERATOR ▶

J **xxP-xxx*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection
AA 120V~/5,4W	1 Non-locking	FA Base plug-in
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode
DB 12V~/5,4W		FG Base plug-in with rectifier
DC 24V~/2,4W		

48
400
92

* Click here for other options available.
Note : AC voltage requires connector with rectifier.

93

OPTIONS

46A-LSB-AJ-J**xxP-xxx**

- D** Side cylinder ports
- M** Bottom cylinder ports
- O** Base only - no valve
- L** Base mount body
- M** Base mount body with gage port

Example : base only with regulator: 46A-OSB-AD.
End plate quit required (port size G1/4") : M-46003-01P.

ISO 1
ISO 2
ISO 3

TECHNICAL DATA

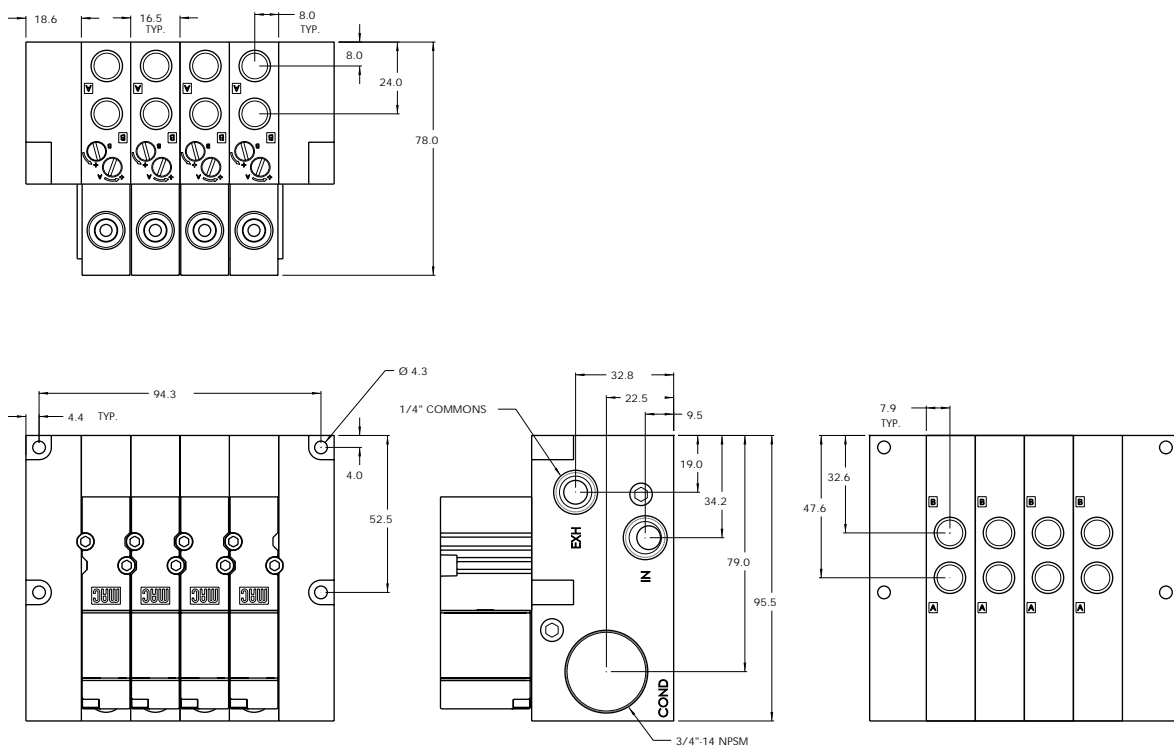
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

Options : • NPTF threads

Spare parts : • Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002
• Tie rod (x2) : 79443

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
4/2	G1/8"	300 NI/min	Manifold base "plug-in" with PR & FC	

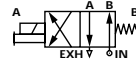
OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Patented solenoid develops high shifting forces.
3. Short stroke with high flow.
4. Higher forces result in lower wattages for given flow.
5. Powerful return spring.

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HOW TO ORDER

Port size	Model number
Valve less base	46A-L00-00-J xxP-xxx
G1/8"	46A-LSB-AK-J xxP-xxx



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42
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SOLENOID OPERATOR ▶

J **xxP-xxx*** (-G) Add "G" for ground

XX Voltage	X Manual operator	XX Electrical connection
AA 120V~/5,4W	1 Non-locking	FA Base plug-in
DA 24V~/5,4W	2 Locking	FB Base plug-in with diode
DB 12V~/5,4W		FG Base plug-in with rectifier
DC 24V~/2,4W		

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400
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* Click here for other options available.
Note : AC voltage requires connector with rectifier.

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OPTIONS

46A-LSB-AJ-J xxP-xxx
K Regulator with adjusting knob & flow controls
F Regulator with slotted stem & flow controls
H Regulator with slotted stem with locknut & flow controls
O Base only – no valve
L Base mount body
M Base mount body with gage port

ISO 1
ISO 2
ISO 3

Example : base only with regulator : 46A-0SB-AK.
End plate quit required (port size G1/4") : M-46003-01P.

TECHNICAL DATA

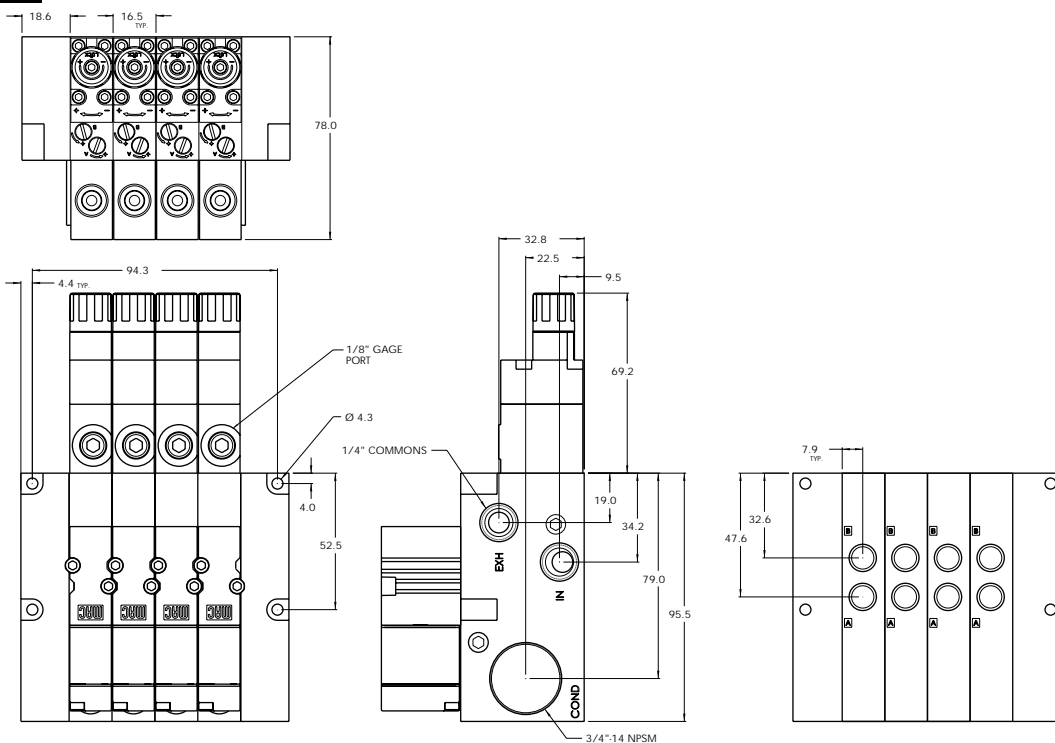
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow (at 6 bar, ΔP=1bar) :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (Cv 0,20) – 5,4W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,4W – 2,4W – 1,0W
Response times :	Energize : 7,20 ms De-energize : 4,20ms

- Options :
- NPTF threads
- Spare parts :
- Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002 • Tie rod (x2) : 79443
 - Replacement regulators : PR46A-OAAA (slotted stem)
PR46A-OBAA (adjusting knob)
PR46A-OCAA (slotted stem with locknut)

- Regulating range options :
- PR46A-xxx**A**
 - A** 0 to 8 bar
 - B** 0 to 5,3 bar
 - C** 0 to 2 bar

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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Series

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Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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400

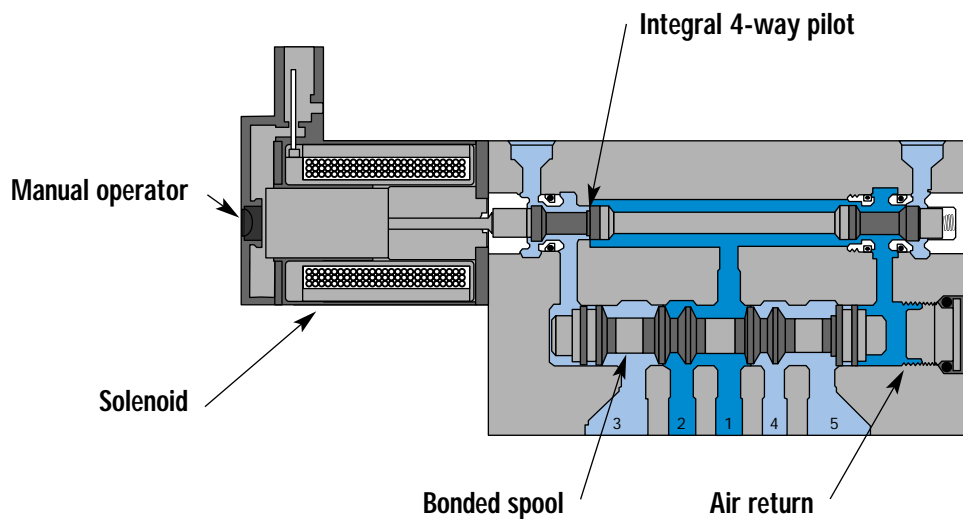
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- High force MACSOLENOID[®].
- Integral 4-way pilot design.
- Single or dual pressure.
- Internal or external pilot.
- Single or double solenoid.
- 2 or 3 position.
- Rectified AC voltage.
- Latching solenoid technology.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	M5, M7	400 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	42A-AMA-000-Gxxx-xxx	42A-BMA-000-Gxxx-xxx	42A-EMA-000-Gxxx-xxx	42A-FMA-000-Gxxx-xxx
	External	42A-AMD-000-Gxxx-xxx	42A-BMD-000-Gxxx-xxx	42A-EMD-000-Gxxx-xxx	42A-FMD-000-Gxxx-xxx
M5	Internal	42A-AMA-GAL-Gxxx-xxx	42A-BMA-GAL-Gxxx-xxx	42A-EMA-GAL-Gxxx-xxx	42A-FMA-GAL-Gxxx-xxx
	External	42A-AMD-GAM-Gxxx-xxx	42A-BMD-GAM-Gxxx-xxx	42A-EMD-GAM-Gxxx-xxx	42A-FMD-GAM-Gxxx-xxx
M7	Internal	42A-AMA-LAL-Gxxx-xxx	42A-BMA-LAL-Gxxx-xxx	42A-EMA-LAL-Gxxx-xxx	42A-FMA-LAL-Gxxx-xxx
	External	42A-AMD-LAM-Gxxx-xxx	42A-BMD-LAM-Gxxx-xxx	42A-EMD-LAM-Gxxx-xxx	42A-FMD-LAM-Gxxx-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	42A-CMB-000-Gxxx-xxx	42A-DMB-000-Gxxx-xxx
	Internal	Supply #5 port	42A-CMC-000-Gxxx-xxx	42A-DMC-000-Gxxx-xxx
M5	External		42A-CMD-000-Gxxx-xxx	42A-DMD-000-Gxxx-xxx
	Internal	Supply #3 port	42A-CMB-GAL-Gxxx-xxx	42A-DMB-GAL-Gxxx-xxx
M7	Internal	Supply #5 port	42A-CMC-GAL-Gxxx-xxx	42A-DMC-GAL-Gxxx-xxx
	External		42A-CMD-GAM-Gxxx-xxx	42A-DMD-GAM-Gxxx-xxx
M7	Internal	Supply #3 port	42A-CMB-LAL-Gxxx-xxx	42A-DMB-LAL-Gxxx-xxx
	Internal	Supply #5 port	42A-CMC-LAL-Gxxx-xxx	42A-DMC-LAL-Gxxx-xxx
	External		42A-CMD-LAM-Gxxx-xxx	42A-DMD-LAM-Gxxx-xxx

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DC	24 V-/1,8W	B	60 cm	2	Locking	BT	Flying leads with light
DD	24 V-/2,5W	C	90 cm			KA	Mini connector
DF	24 V-/4,0W					KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

Note : AC voltage requires connector with rectifier.

* Click here for other options available.

Latching solenoid available for 5/2 valves.

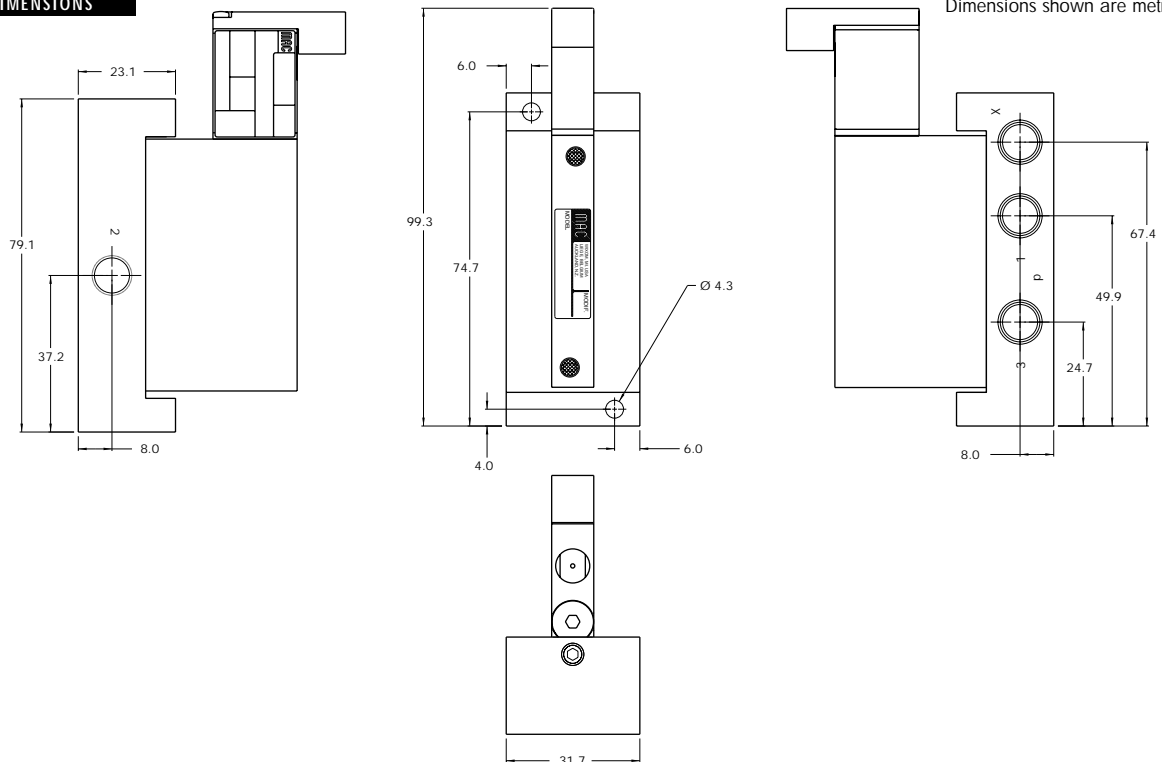
Other options available for the 42 series valves, click here.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot - 2 pos. : 1,3 to 8 bar 3 pos. : 2,3 to 8 bar External Pilot : vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar 3 position : 2,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M7: 400 NI/min (Cv 0,4) – M5: 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 24V 4 W coil)	Energize : 5 ms De-energize : 5 ms

- Options :
- NPTF threads
 - Sandwich flow controls : FC42A-BB
 - Sandwich regulator : see 'Regulator' section

DIMENSIONS





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	M5, M7	400 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.

HOW TO ORDER

SINGLE PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	42A-AMA-000-GxxP-xxx	42A-BME-000-GxxP-xGA	42A-EME-000-GxxP-xGA	42A-FME-000-GxxP-xGA
	External	42A-AMD-000-GxxP-xxx	42A-BMH-000-GxxP-xGA	42A-EMH-000-GxxP-xGA	42A-FMH-000-GxxP-xGA
M5	Internal	42A-AMA-GAA-GxxP-xxx	42A-BME-GAC-GxxP-xGA	42A-EME-GAC-GxxP-xGA	42A-FME-GAC-GxxP-xGA
	External	42A-AMD-GAB-GxxP-xxx	42A-BMH-GAD-GxxP-xGA	42A-EMH-GAD-GxxP-xGA	42A-FMH-GAD-GxxP-xGA
M7	Internal	42A-AMA-LAA-GxxP-xxx	42A-BME-LAC-GxxP-xGA	42A-EME-LAC-GxxP-xGA	42A-FME-LAC-GxxP-xGA
	External	42A-AMD-LAB-GxxP-xxx	42A-BMH-LAD-GxxP-xGA	42A-EMH-LAD-GxxP-xGA	42A-FMH-LAD-GxxP-xGA

DUAL PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	42A-CMB-000-GxxP-xxx	42A-DMF-000-GxxP-xGA
		Supply #5 port	42A-CMC-000-GxxP-xxx	42A-DMG-000-GxxP-xGA
	External	42A-CMD-000-GxxP-xxx	42A-DMH-000-GxxP-xGA	
M5	Internal	Supply #3 port	42A-CMB-GAA-GxxP-xxx	42A-DMF-GAC-GxxP-xGA
		Supply #5 port	42A-CMC-GAA-GxxP-xxx	42A-DMG-GAC-GxxP-xGA
	External	42A-CMD-GAB-GxxP-xxx	42A-DMH-GAD-GxxP-xGA	
M7	Internal	Supply #3 port	42A-CMB-LAA-GxxP-xxx	42A-DMF-LAC-GxxP-xGA
		Supply #5 port	42A-CMC-LAA-GxxP-xxx	42A-DMG-LAC-GxxP-xGA
	External	42A-CMD-LAB-GxxP-xxx	42A-DMH-LAD-GxxP-xGA	

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection
AA	120 V~/2,5W	1	Non-locking	GA	Base plug-in
DC	24 V~/1,8W	2	Locking	DJ	Base plug-in
DD	24 V~/2,5W			DM	Base plug-in with ground pin
DF	24 V~/4,0W			DD	Base plug-in with rectifier & light & ground

Note : AC voltage requires connector with rectifier for single solenoid only.

* Click here for other options available.

Other options available for the 42 series valves, click here.

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

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ISO 1

ISO 2

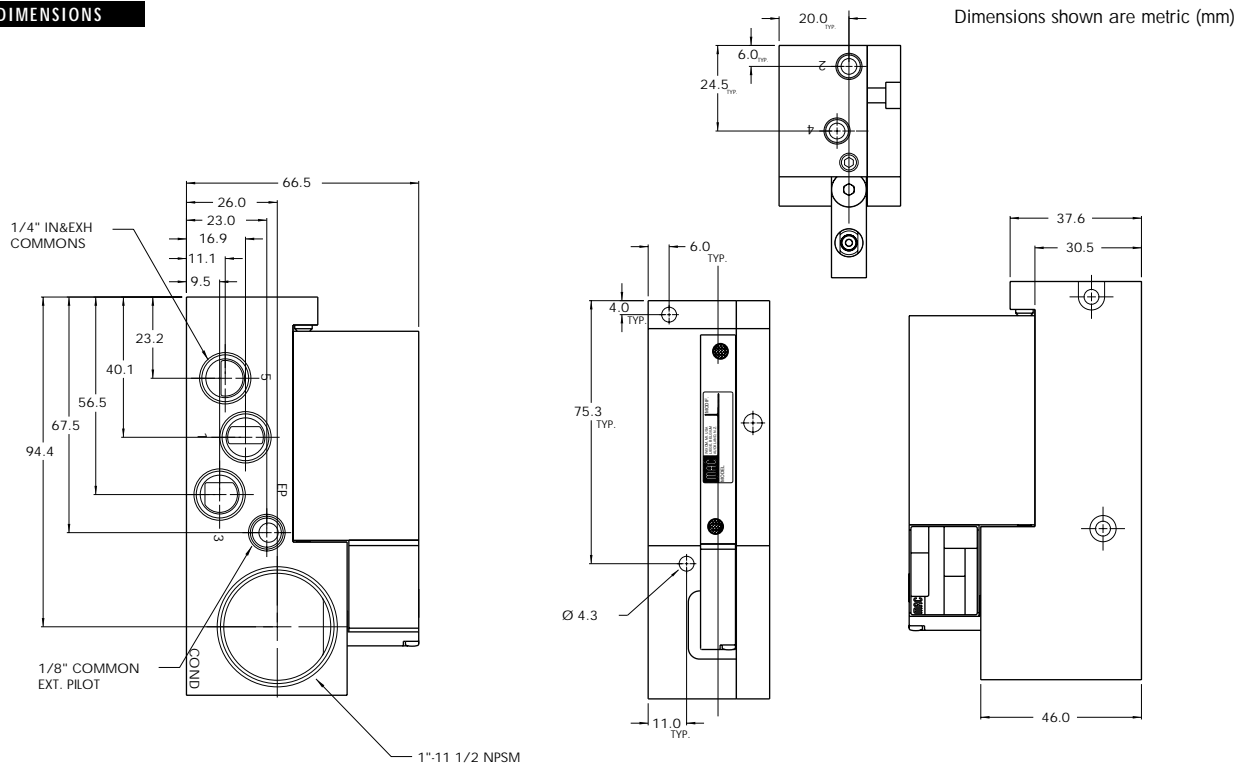
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot - 2 pos. : 1,3 to 8 bar 3 pos. : 2,3 to 8 bar External Pilot : vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar 3 position : 2,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M7: 400 NI/min (Cv 0,4) – M5: 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times :	Energize : 5 ms (with 24V 4 W coil) De-energize : 5 ms

- Options :
- NPTF ports
 - Sandwich flow controls : FC42A-AB
 - Sandwich regulator : see 'Regulator' section

DIMENSIONS





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	M5, M7	400 NI/min	Manifold base non "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS (MIDDLE STATION MANIFOLDS WITH SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	42A-AMA-000-Gxxx-xxx	42A-BMA-000-Gxxx-xxx	42A-EMA-000-Gxxx-xxx	42A-FMA-000-Gxxx-xxx
	External	42A-AMD-000-Gxxx-xxx	42A-BMD-000-Gxxx-xxx	42A-EMD-000-Gxxx-xxx	42A-FMD-000-Gxxx-xxx
M5	Internal	42A-AMA-GJL-Gxxx-xxx	42A-BMA-GJL-Gxxx-xxx	42A-EMA-GJL-Gxxx-xxx	42A-FMA-GJL-Gxxx-xxx
	External	42A-AMD-GJM-Gxxx-xxx	42A-BMD-GJM-Gxxx-xxx	42A-EMD-GJM-Gxxx-xxx	42A-FMD-GJM-Gxxx-xxx
M7	Internal	42A-AMA-LJL-Gxxx-xxx	42A-BMA-LJL-Gxxx-xxx	42A-EMA-LJL-Gxxx-xxx	42A-FMA-LJL-Gxxx-xxx
	External	42A-AMD-LJM-Gxxx-xxx	42A-BMD-LJM-Gxxx-xxx	42A-EMD-LJM-Gxxx-xxx	42A-FMD-LJM-Gxxx-xxx

DUAL PRESSURE MODELS (MIDDLE STATION MANIFOLDS WITH SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	42A-CMB-000-Gxxx-xxx	42A-DMB-000-Gxxx-xxx
		Supply #5 port	42A-CMC-000-Gxxx-xxx	42A-DMC-000-Gxxx-xxx
	External		42A-CMD-000-Gxxx-xxx	42A-DMD-000-Gxxx-xxx
M5	Internal	Supply #3 port	42A-CMB-GJL-Gxxx-xxx	42A-DMB-GJL-Gxxx-xxx
		Supply #5 port	42A-CMC-GJL-Gxxx-xxx	42A-DMC-GJL-Gxxx-xxx
	External		42A-CMD-GJM-Gxxx-xxx	42A-DMD-GJM-Gxxx-xxx
M7	Internal	Supply #3 port	42A-CMB-LJL-Gxxx-xxx	42A-DMB-LJL-Gxxx-xxx
		Supply #5 port	42A-CMC-LJL-Gxxx-xxx	42A-DMC-LJL-Gxxx-xxx
	External		42A-CMD-LJM-Gxxx-xxx	42A-DMD-LJM-Gxxx-xxx

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V~/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DC	24 V~/1,8W	B	60 cm	2	Locking	BT	Flying leads with light
DD	24 V~/2,5W	C	90 cm			KA	Mini connector
DF	24 V~/4,0W					KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

Note : - AC voltage requires connector with rectifier.

* Click here for other options available.

Latching solenoid available for 5/2 valves.

Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K").

Other options available for the 42 series valves, click here.

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

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ISO 1

ISO 2

ISO 3

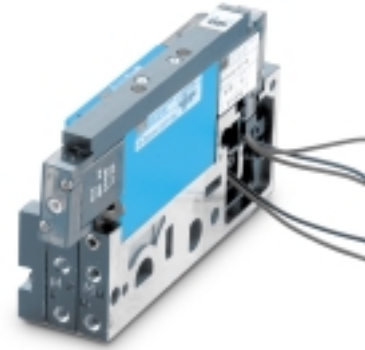


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	M5, M7	400 NI/min	Manifold base "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	42A-AMA-000-GxxP-xxx	42A-BME-000-GxxP-xxx	42A-EME-000-GxxP-xxx	42A-FME-000-GxxP-xxx
	External	42A-AMD-000-GxxP-xxx	42A-BMH-000-GxxP-xxx	42A-EMH-000-GxxP-xxx	42A-FMH-000-GxxP-xxx
M5	Internal	42A-AMA-GJA-GxxP-xxx	42A-BME-GJC-GxxP-xxx	42A-EME-GJC-GxxP-xxx	42A-FME-GJC-GxxP-xxx
	External	42A-AMD-GJB-GxxP-xxx	42A-BMH-GJD-GxxP-xxx	42A-EMH-GJD-GxxP-xxx	42A-FMH-GJD-GxxP-xxx
M7	Internal	42A-AMA-LJA-GxxP-xxx	42A-BME-LJC-GxxP-xxx	42A-EME-LJC-GxxP-xxx	42A-FME-LJC-GxxP-xxx
	External	42A-AMD-LJB-GxxP-xxx	42A-BMH-LJD-GxxP-xxx	42A-EMH-LJD-GxxP-xxx	42A-FMH-LJD-GxxP-xxx

DUAL PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	42A-CMB-000-GxxP-xxx	42A-DMF-000-GxxP-xxx
		Supply #5 port	42A-CMC-000-GxxP-xxx	42A-DMG-000-GxxP-xxx
	External		42A-CMD-000-GxxP-xxx	42A-DMH-000-GxxP-xxx
M5	Internal	Supply #3 port	42A-CMB-GJA-GxxP-xxx	42A-DMF-GJC-GxxP-xxx
		Supply #5 port	42A-CMC-GJA-GxxP-xxx	42A-DMG-GJC-GxxP-xxx
	External		42A-CMD-GJB-GxxP-xxx	42A-DMH-GJD-GxxP-xxx
M7	Internal	Supply #3 port	42A-CMB-LJA-GxxP-xxx	42A-DMF-LJC-GxxP-xxx
		Supply #5 port	42A-CMC-LJA-GxxP-xxx	42A-DMG-LJC-GxxP-xxx
	External		42A-CMD-LJB-GxxP-xxx	42A-DMH-LJD-GxxP-xxx

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	1	Non-locking		Double solenoid & 3 position models
DC	24 V-/1,8W	2	Locking	GA	Base plug-in
DD	24 V-/2,5W				Single solenoid models
DF	24 V-/4,0W			DJ	Base plug-in
				DM	Base plug-in with ground pin
				DD	Base plug-in with rectifier & light & ground

* Click here for other options available.

** Latching solenoid available for 5/2 valves.

Note : - AC voltage requires connector with rectifier for single solenoid only.

- Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K").

Other options available for the 42 series valves, click here.

Above numbers are middle station manifold with side ports

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

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ISO 1

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TECHNICAL DATA

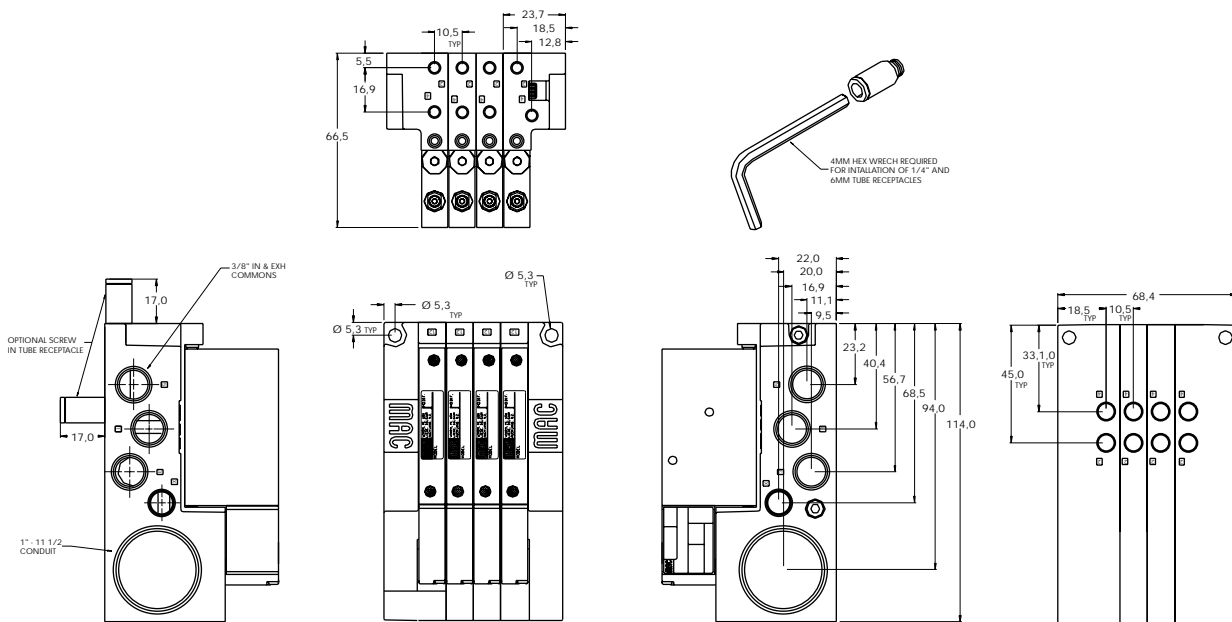
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot - 2 pos. : 1,3 to 8 bar 3 pos. : 2,3 to 8 bar External Pilot : vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar 3 position : 2,3 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M7: 400 NI/min (Cv 0,4) – M5: 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times :	Energize : 5 ms (with 24V 4 W coil) De-energize : 5 ms

Options :

- NPTF threads • Sandwich flow controls : FC42A-AB
- Sandwich regulator : see "regulators" section • Isolator disk for inlet and exhaust: 28454
- Valve blanking plate : M-42004 • Plug-in wire protector : 24180

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2	M5, M7	400 NI/min	Sub-base/ manifold base non "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single pressure
Valve less base	Internal	42A-AMA-000-Lxxx-xxx
	External	42A-AMD-000-Lxxx-xxx
M5	Internal	42A-AMA-GAL-Lxxx-xxx
	External	42A-AMD-GAM-Lxxx-xxx
M7	Internal	42A-AMA-LAL-Lxxx-xxx
	External	42A-AMD-LAM-Lxxx-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Dual pressure
Valve less base	Internal Supply #3 port	42A-CMB-000-Lxxx-xxx
	Internal Supply #5 port	42A-CMC-000-Lxxx-xxx
	External	42A-CMD-000-Lxxx-xxx
M5	Internal Supply #3 port	42A-CMB-GAL-Lxxx-xxx
	Internal Supply #5 port	42A-CMC-GAL-Lxxx-xxx
	External	42A-CMD-GAM-Lxxx-xxx
M7	Internal Supply #3 port	42A-CMB-LAL-Lxxx-xxx
	Internal Supply #5 port	42A-CMC-LAL-Lxxx-xxx
	External	42A-CMD-LAM-Lxxx-xxx

LATCHING SOLENOID OPERATOR ▶

L		XXX-XXX*	
XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DF 24 VDC (4,0 W)	A 45 cm	0 No operator	BA 2 Wire Flying leads
HA 24 VDC (1,95 W)	B 60 cm		KA 2 Wire Plug-in Assembly
	C 90 cm		LA 3 wire plug-in assembly (polarity switching cover)
			KE 4-wire plug-in assembly

* Click here for other options available.

Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K"). Other options available for the 42 series valves, click here.

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Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2	M5, M7	400 NI/min	Sub-base/ manifold base "plug-in" with latching solenoid	

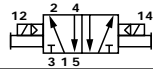
OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 10 mm valve (stacks on 10,5 mm centres).
3. High flow (up to 400 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.

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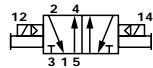
HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single pressure
		
Valve less base	Internal	42A-AMA-000-LxxP-xxx
	External	42A-AMD-000-LxxP-xxx
M5	Internal	42A-AMA-GAA-LxxP-xxx
	External	42A-AMD-GAB-LxxP-xxx
M7	Internal	42A-AMA-LAA-LxxP-xxx
	External	42A-AMD-LAB-LxxP-xxx

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DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Dual pressure	
			
Valve less base	Internal	Supply #3 port	42A-CMB-000-LxxP-xxx
		Supply #5 port	42A-CMC-000-LxxP-xxx
	External		42A-CMD-000-LxxP-xxx
M5	Internal	Supply #3 port	42A-CMB-GAA-LxxP-xxx
		Supply #5 port	42A-CMC-GAA-LxxP-xxx
	External		42A-CMD-GAB-LxxP-xxx
M7	Internal	Supply #3 port	42A-CMB-LAA-LxxP-xxx
		Supply #5 port	42A-CMC-LAA-LxxP-xxx
	External		42A-CMD-LAB-LxxP-xxx

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LATCHING SOLENOID OPERATOR ►

L **XX** P-**XXX***

XX Voltage	X Manual operator	XX Electrical connection**
DF 24 VDC/4,0W	0 No operator	DA Plug-in
HA 24 VDC/1,95W		EA Plug-in 3 pin (polarity switching cover)

* Click here for other options available.

** For latching solenoid 2 and 4 wire, use electrical connector DA, DB, DC or DD. For 3 wire latching, use the "EA" connector. Other options available for the 42 series valves, click here.

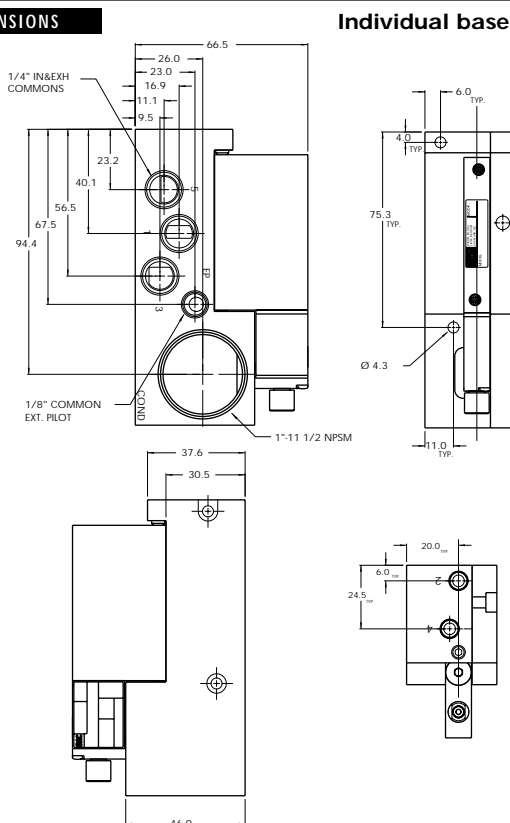
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot - 2 pos. : 1,3 to 8 bar 3 pos. : 2,3 to 8 bar External Pilot : vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar 3 position : 2,3 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
Orifice :	3,8 mm
Flow (at 6 bar, ΔP=1bar) :	M7: 400 NI/min (Cv 0,4) – M5: 350 NI/min (Cv 0,35)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.95 to 4.0 W
Response times :	Energize : 5 ms De-energize : 5 ms

Options :

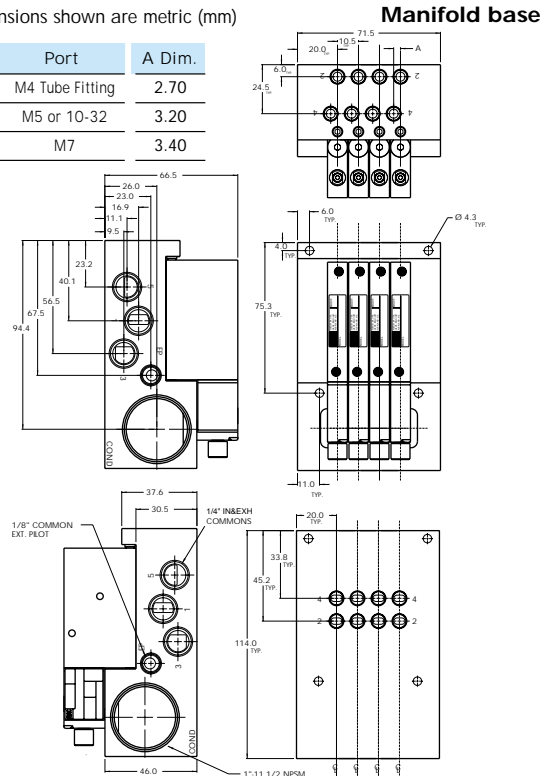
- NPTF threads • Sandwich flow controls : FC42A-AB
- Sandwich regulator : see "regulators" section • Isolator disk for inlet and exhaust: 28454
- Valve blanking plate : M-42004 • Plug-in wire protector : 24180

DIMENSIONS



Dimensions shown are metric (mm)

Port	A Dim.
M4 Tube Fitting	2.70
M5 or 10-32	3.20
M7	3.40



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

OPTIONS FOR NON PLUG-IN VALVES	34
<p>Base type :</p> <p>Individual base</p> <p>42A-XXX-XAX-Gxxx-xxx</p> <ul style="list-style-type: none"> A Individual base – Side port B Individual base – Bottom port 	36
<p>Manifold base</p> <p>42A-XXX-XJX-Gxxx-xxx</p> <ul style="list-style-type: none"> J Manifold base – Side ports K Manifold base – Bottom ports L Left end manifold base – Side ports M Left end manifold base - Bottom ports N Right end manifold base –Side ports P Right end manifold base – Bottom ports 	32
<p>Universal spool</p> <p>42A-RXX-XXX-Gxxx-xxx</p> <ul style="list-style-type: none"> R 2 position single solenoid universal spool S 2 position double solenoid universal spool 	37
<p>Base only :</p> <p>42A-000-XXX (i.e. 42A-000-GAL) - Individual base</p> <p>42A-000-XXX (i.e. 42A-000-GJL) - Manifold base</p>	38
<p>Pilot style :</p> <p>42A-XXM-XXX-Gxxx-xxx</p> <ul style="list-style-type: none"> M Pilot exhaust muffled R Pilot exhaust piped (M5) U Pilot exhaust to main exhaust 	52
<p>Base/Manifold configurations for LATCHING SOLENOID VALVES :</p> <p>42A-xxx-xAx-Lxxx-xxx</p> <ul style="list-style-type: none"> A Individual base – Side port B Individual base – Bottom port J Manifold base – Side ports K Manifold base – Bottom ports L Left end manifold base - Side ports M Left end manifold base - Bottom ports N Right end manifold base - Side ports P Right end manifold base - Bottom ports 	67
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Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Base type :

Individual base

42A-XXX-**AX**-GxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port

Manifold base

42A-XXX-**XJX**-GxxP-xxx

- J** Manifold base – Side ports
- K** Manifold base – Bottom ports
- L** Left end manifold base – Side ports
- M** Left end manifold base – Bottom ports
- N** Right end manifold base – Side ports
- P** Right end manifold base – Bottom ports

Universal spool

42A-**RXX**-XXX-GxxP-xxx

- R** 2 position single solenoid universal spool
- S** 2 position double solenoid universal spool

Base only :

42A-000-XXX (i.e. 42A-000-GAC)

- Individual base wired for a double solenoid

42A-000-XXX (i.e. 42A-000-GJC)

- Manifold base wired for a single solenoid

For LED with diode (2 & 3 position double solenoid valves)

42A-**XXJ**-XXX-GxxP-**xGA**

- J** Internal pilot single pressure
- K** Internal pilot dual pressure supply from #3 port
- L** Internal pilot dual pressure supply from #5 port
- M** External pilot

Pilot style :

42A-**XXM**X-XXX-GxxP-xxx

- M** Pilot exhaust muffled
- R** Pilot exhaust piped (M5)
- U** Pilot exhaust to main exhaust

Base/Manifold configurations for LATCHING SOLENOID VALVES :

42A-xxx-**AX**-LxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- J** Manifold base – Side ports
- K** Manifold base – Bottom ports
- L** Left end manifold base - Side ports
- M** Left end manifold base - Bottom ports
- N** Right end manifold base - Side ports
- P** Right end manifold base - Bottom ports

Base/Manifold options for int./ext. pilot for LATCHING SOLENOID VALVES :

42A-xxx-xx**A**-LxxP-xxx

- A** Plug-in Int. Pilot – 2 Wire Latching
- B** Plug-in Ext. Pilot – 2 Wire Latching
- C** Plug-in Int. Pilot – 3 Wire Latching
- D** Plug-in Ext. Pilot – 3 Wire Latching
- E** Plug-in Int. Pilot – 4 Wire Latching
- F** Plug-in Ext. Pilot – 4 Wire Latching

Individual mounting

Inline	Sub-base non "plug-in"
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Series

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Manifold mounting

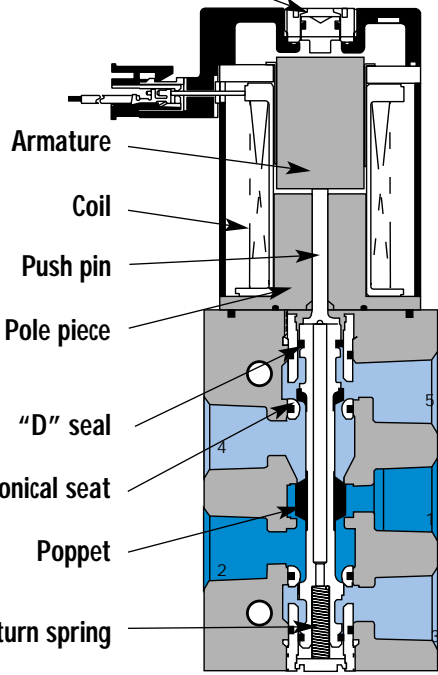
Stacking	Manifold base "plug-in"
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Manual operator

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SERIES FEATURES

- Short stroke solenoid produces high energization shifting force.
- High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
- Built-in wear compensation - valve stroke is shorter than solenoid stroke.
- Four (4) bonded balanced poppets on a one-piece valve stem.
- End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
- Exhaust seals are not under inlet pressure thus reducing friction.
- Short stroking balanced poppet allows for direct solenoid operation with high shifting forces, minimized friction, fast response and high flow in a small package.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual Mounting	Series
5/2	G1/8" - G1/4"	500 NI/min	Inline	

OPERATIONAL BENEFITS

- Short stroke solenoid produces high energization shifting force.
- High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Four bonded balanced poppets on a one-piece valve stem.
- End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
- Exhaust seals are not under inlet pressure thus reducing friction.
- Integral non-rising flow controls available on inline models.
- Short stroking balanced poppet allows for direct solenoid operation with high shifting forces, minimized friction, fast response and high flow in a small package.



HOW TO ORDER

Port size	Without flow controls	With flow controls
G1/8"	47A-AC0-H xxx-xxx	47A-BC0-H xxx-xxx
G1/4"	47A-AD0-H xxx-xxx	47A-BD0-H xxx-xxx

SOLENOID OPERATOR >

H **XXX-XXX***

XX	Voltage	X	Lead Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	1	Non-locking	MA	Plug-in wire assembly
DB	24V=/2,4W	B	60 cm	2	Locking	MC	Plug-in wire assembly with light
DC	24V=/1,8W	C	90 cm			BA	Flying leads
DD	24V=/1,0W					BC	Flying leads with light
AA	120V=/6,7W					MT	Plug-in wire assembly with rectifier & light

* Click here for other options available.
Note: AC voltage requires connector with rectifier.

LATCHING OPERATOR >

L **XXX-XXX***

XX	Voltage	X	Lead Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	0	No operator	BA	2 Wire Flying leads
DF	12V=/5,2W	B	60 cm			BJ	4 Wire Flying leads
		C	90 cm			LA	3 Wire Plug-in (Polarity switching cover)
						MA	2 Wire Plug-in
						ME	4 Wire Plug-in

* Click here for other options available.

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ISO 1

ISO 2

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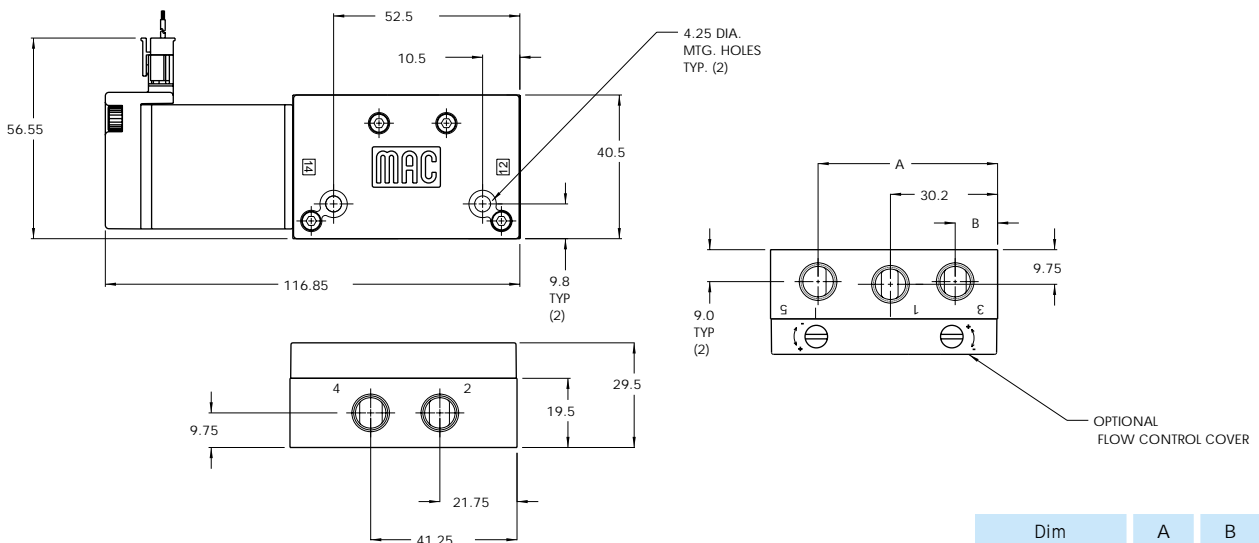
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow (at 6 bar, ΔP=1bar) :	5,2W : 500 NI/min (Cv 0,50) – 2,4W : 350NI/min (Cv 0,35) – 1,0W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2W – 2,4W – 1,0W
Response times :	Energize : 17,4 ms
(with 5,2 W coil)	De-energise : 3,8 ms

- Options :
- NPTF threads
- Spare parts :
- Flow control assembly : N-47004

DIMENSIONS

Dimensions shown are metric (mm)



Dim	A	B
1/8"	50.6	11.95
1/4"	49.2	11.2

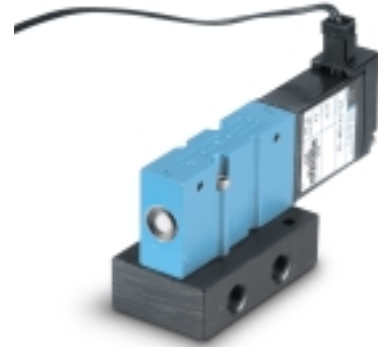


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual Mounting	Series
5/2	G1/8" - G1/4"	500 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

- Short stroke solenoid produces high energization shifting force.
- High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Four bonded balanced poppets on a one-piece valve stem.
- End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
- Exhaust seals are not under inlet pressure thus reducing friction.
- Integral non-rising flow controls available on inline models.
- Short stroking balanced poppet allows for direct solenoid operation with high shifting forces, minimized friction, fast response and high flow in a small package.



HOW TO ORDER

Port size	Without flow controls	With flow controls
Valve less base	47A-L10-H xxx-xxx	47A-L10-H xxx-xxx
G1/8"	47A-LCA-H xxx-xxx	47A-LCB-H xxx-xxx
G1/4"	47A-LDA-H xxx-xxx	47A-LDB-H xxx-xxx

SOLENOID OPERATOR >

H **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	1	Non-locking	MA	Plug-in wire assembly
DB	24V=/2,4W	B	60 cm	2	Locking	MC	Plug-in wire assembly with light
DC	24V=/1,8W	C	90 cm			BA	Flying leads
DD	24V=/1,0W					BC	Flying leads with light
AA	120V-/6,7W					MT	Plug-in wire assembly with rectifier & light

* Click here for other options available.
Note: AC voltage requires connector with rectifier.

LATCHING OPERATOR >

L **XXX-XXX***

XX	Voltage	X	Lead Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	0	No operator	BA	2 Wire Flying leads
DF	12V=/5,2W	B	60 cm			BJ	4 Wire Flying leads
		C	90 cm			LA	3 Wire Plug-in (Polarity switching cover)
						MA	2 Wire Plug-in
						ME	4 Wire Plug-in

* Clic for other options available.

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ISO 1

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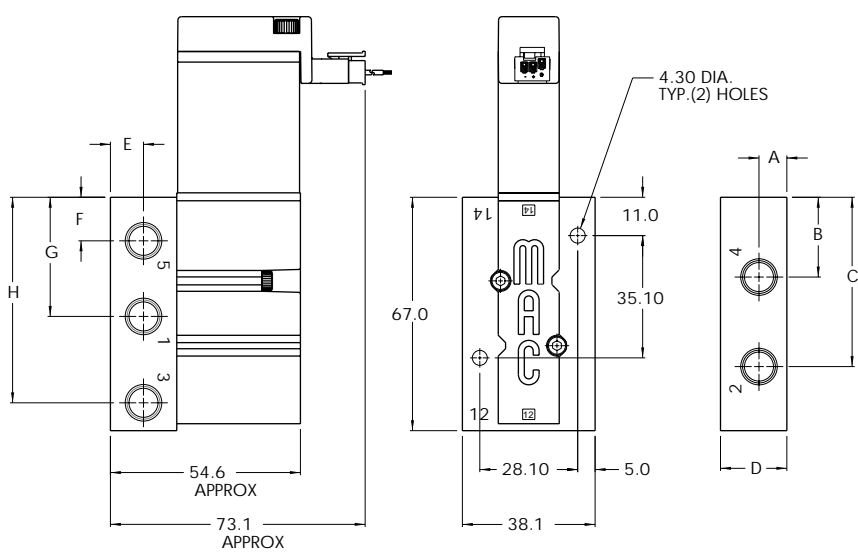
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow (at 6 bar, ΔP=1bar) :	5,2W : 500 NI/min (Cv 0,50) – 2,4W : 350NI/min (Cv 0,35) – 1,0W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2W – 2,4W – 1,0W
Response times : (with 5,2 W coil)	Energize : 17,4 ms De-energize : 3,8 ms

- Options :
- NPTF threads
- Spare parts :
- Pressure seal body to base: 16628
 - Mounting screw (x2): 35043
 - Flow control assembly (x2): N-04001

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold Mounting	Series
5/2	G1/8" - G1/4"	500 NI/min	Stacking	

OPERATIONAL BENEFITS

- Short stroke solenoid produces high energization shifting force.
- High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Four bonded balanced poppets on a one-piece valve stem.
- End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
- Exhaust seals are not under inlet pressure thus reducing friction.
- Integral non-rising flow controls available on inline models.
- Short stroking balanced poppet allows for direct solenoid operation with high shifting forces, minimized friction, fast response and high flow in a small package.



HOW TO ORDER

Port size	Without flow controls	With flow controls
G1/8"	47A-SCO-H xxx-xxx	47A-TCO-H xxx-xxx
G1/4"	47A-SDO-H xxx-xxx	47A-TDO-H xxx-xxx

SOLENOID OPERATOR ➤

H **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	1	Non-locking	MA	Plug-in wire assembly
DB	24V=/2,4W	B	60 cm	2	Locking	MC	Plug-in wire assembly with light
DC	24V=/1,8W	C	90 cm			BA	Flying leads
DD	24V=/1,0W					BC	Flying leads with light
AA	120V-/6,7W					MT	Plug-in wire assembly with rectifier & light

* Click here for other options available.
Note: AC voltage requires connector with rectifier.

LATCHING OPERATOR ➤

L **XXX-XXX***

XX	Voltage	X	Lead Wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,2W	A	45 cm	0	No operator	BA	2 Wire Flying leads
DF	12V=/5,2W	B	60 cm			BJ	4 Wire Flying leads
		C	90 cm			LA	3 Wire Plug-in (Polarity switching cover)
						MA	2 Wire Plug-in
						ME	4 Wire Plug-in

* Click here for other options available.
End plate kit required: M-47013-01P (1/4" BSPP).

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ISO 1

ISO 2

ISO 3

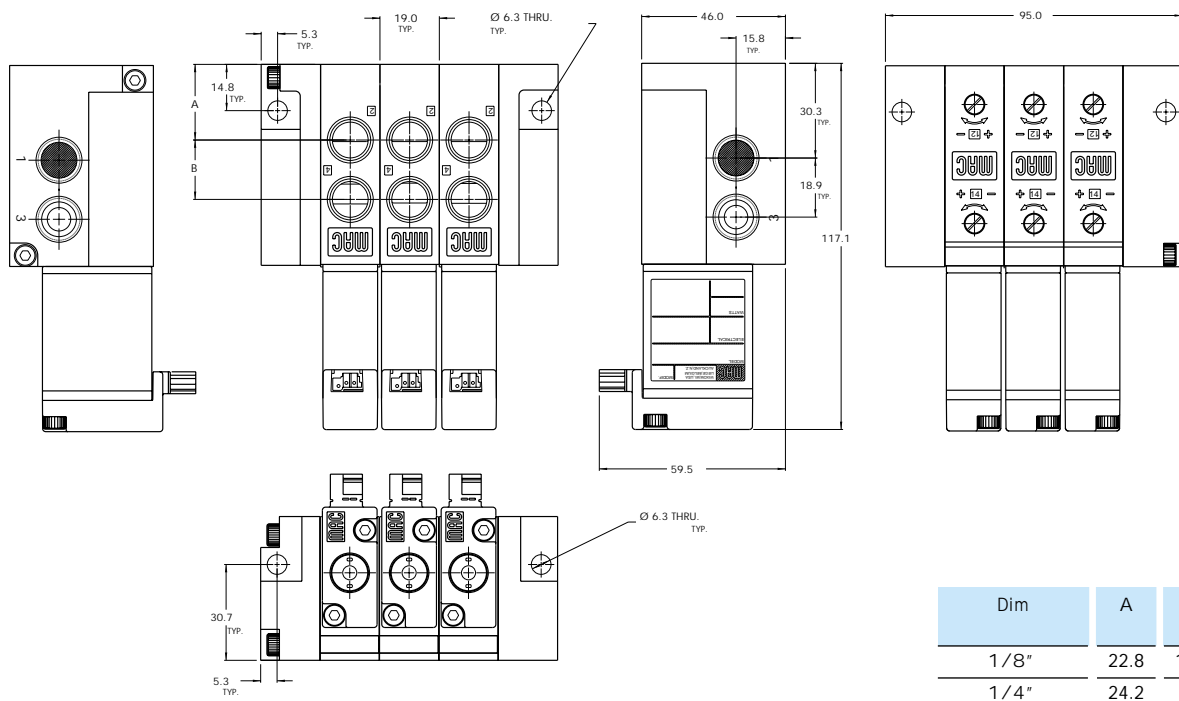
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow (at 6 bar, ΔP=1bar) :	5,2W : 500 NI/min (Cv 0,50) – 2,4W : 350NI/min (Cv 0,35) – 1,0W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2W – 2,4W – 1,0W
Response times : (with 5,2 W coil)	Energize : 17,4 ms De-energize : 3,8 ms

- Options :
- NPTF threads
- Spare parts :
- Inlet isolator: 28451 • Exhaust isolator: N-47009 • Tie Rod (x2): 79057

DIMENSIONS

Dimensions shown are metric (mm)



Dim	A	B
1/8"	22.8	18.4
1/4"	24.2	19

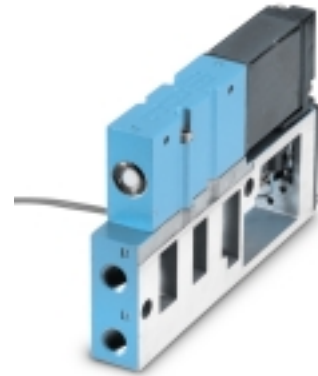


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold Mounting	Series
5/2	G1/8" - G1/4"	500 NI/min	Manifold base "plug-in"	

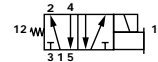
OPERATIONAL BENEFITS

- Short stroke solenoid produces high energization shifting force.
- High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
- Built-in wear compensation – valve stroke is shorter than solenoid stroke.
- Four bonded balanced poppets on a one-piece valve stem.
- End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
- Exhaust seals are not under inlet pressure thus reducing friction.
- Integral non-rising flow controls available on inline models.
- Short stroking balanced poppet allows for direct solenoid operation with high shifting forces, minimized friction, fast response and high flow in a small package.



HOW TO ORDER

Port size	Model number
Valve less base	47A-L10-H xxP-xxx
G1/8"	47A-LCJ-H xxP-xxx
G1/4"	47A-LDJ-H xxP-xxx



SOLENOID OPERATOR ➤

H **xxP-xxx***

XX	Voltage	X	Manual operator	XX	Electrical connection
DA	24 V=/5,2W	1	Non-locking	FA	Base plug-in
DB	24 V=/2,4W	2	Locking	FB	Base plug-in w/ ground
DC	24 V=/1,8W			FC	Base plug-in w/ LED light
DD	24 V=/1,0W			FD	Base plug-in w/ LED light w/ ground
AA	120 V-/6,7W			FT	Base plug-in w/ rectifier and light

* Click here for other options available.
Note : AC voltage requires connector with rectifier.

LATCHING SOLENOID ➤

L **xxP-xxx***

XX	Voltage	X	Manual operator	XX	Electrical connection
DA	24 V=/5,2W	0	No operator	FA	Base plug-in w/ ground
DF	12 V=/5,2W			FB	Base plug-in w/ ground & LED
				FC	Base plug-in 4 wire w/ ground
				FD	Base Plug-in 4 wire w/ LED & ground

* Click here for other options available.

OPTIONS

47A-**xxJ**-H**xxx-xxx**

- J Manifold base, side cylinders (middle station)
- K Manifold base, bottom cylinders (middle station)
- L Right end manifold base, side cylinders
- M Right end manifold base, bottom cylinders
- N Left end manifold base, side cylinders
- P Left end manifold base, bottom cylinders

Fastening kit required: N-47005-01.

Note: Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds.

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

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ISO 1

ISO 2

ISO 3

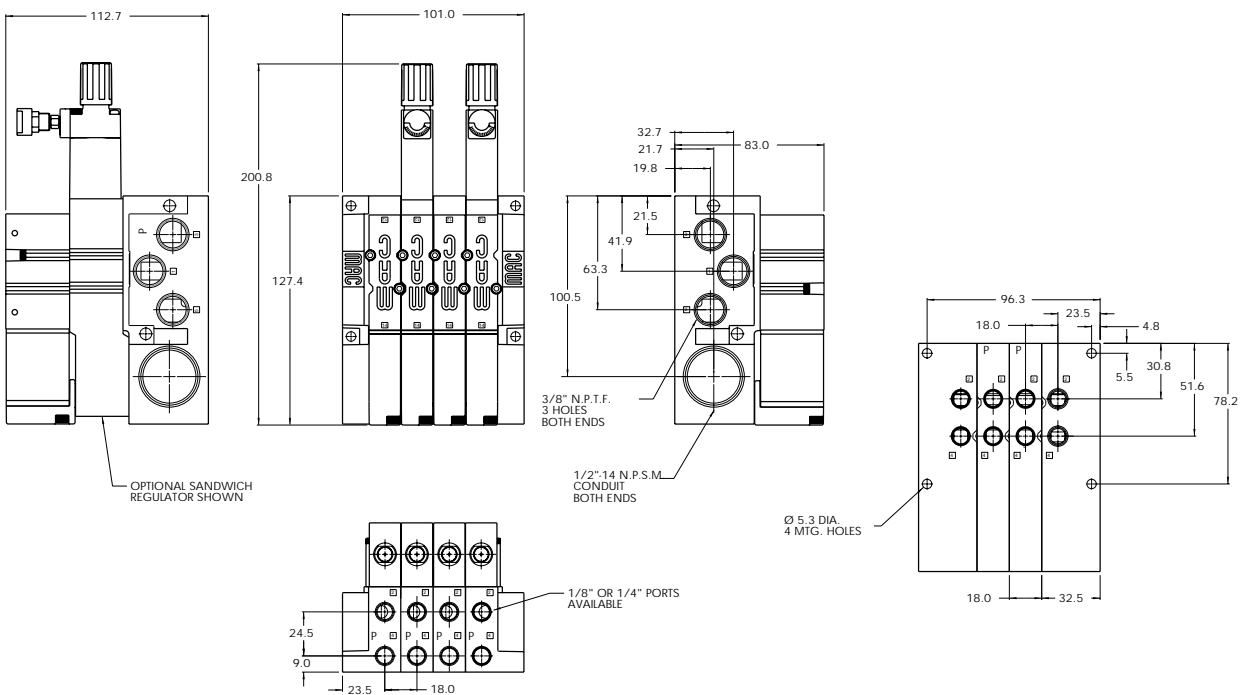
TECHNICAL DATA

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
Orifice :	4,3 mm
Flow (at 6 bar, ΔP=1bar) :	5,2W : 500 NI/min (Cv 0,50) – 2,4W : 350NI/min (Cv 0,35) – 1,0W : 300 NI/min (Cv 0,30)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	5,2W – 2,4W – 1,0W
Response times :	Energize : 17,4 ms
(with 5,2 W coil)	De-energise : 3,8 ms

- Options :
- NPTF threads • Sandwich flow control: FC47A-AA
- Spare parts :
- Inlet/exhaust isolator: 28447 • Valve cover plate: M-47001

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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Series

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Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"	Sub-base/manifold base non "plug-in" with latching solenoid	Sub-base/manifold base "plug-in" with latching solenoid
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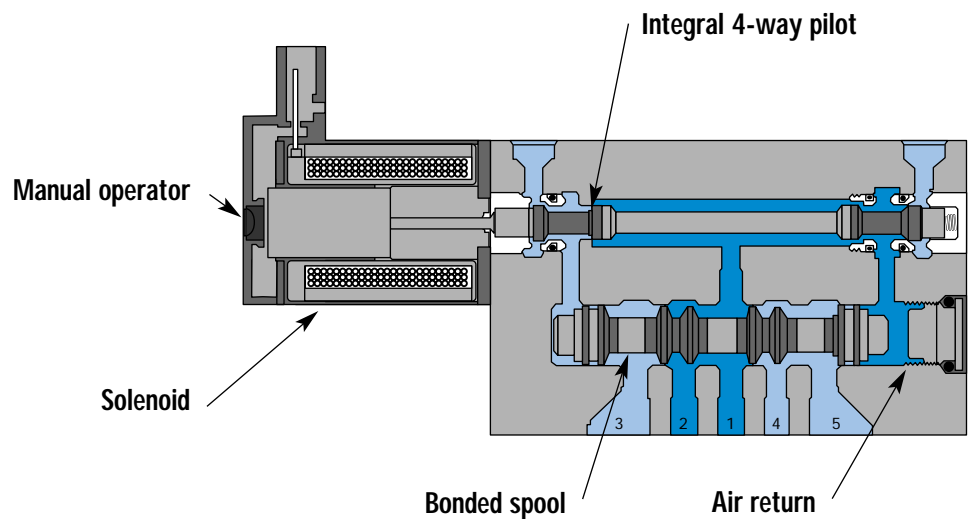
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- High force MACSOLENOID[®].
- Integral 4-way pilot design.
- Single or dual pressure.
- Internal or external pilot.
- Single or double solenoid.
- 2 or 3 position.
- Rectified AC voltage.
- Latching solenoid technology.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8"	1100 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	48A-AMA-000-Gxxx-xxx	48A-BMA-000-Gxxx-xxx	48A-EMA-000-Gxxx-xxx	48A-FMA-000-Gxxx-xxx
	External	48A-AMD-000-Gxxx-xxx	48A-BMD-000-Gxxx-xxx	48A-EMD-000-Gxxx-xxx	48A-FMD-000-Gxxx-xxx
G1/8"	Internal	48A-AMA-BAL-Gxxx-xxx	48A-BMA-BAL-Gxxx-xxx	48A-EMA-BAL-Gxxx-xxx	48A-FMA-BAL-Gxxx-xxx
	External	48A-AMD-BAM-Gxxx-xxx	48A-BMD-BAM-Gxxx-xxx	48A-EMD-BAM-Gxxx-xxx	48A-FMD-BAM-Gxxx-xxx

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DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	48A-CMB-000-Gxxx-xxx	48A-DMB-000-Gxxx-xxx
		Supply #5 port	48A-CMC-000-Gxxx-xxx	48A-DMC-000-Gxxx-xxx
	External		48A-CMD-000-Gxxx-xxx	48A-DMD-000-Gxxx-xxx
G1/8"	Internal	Supply #3 port	48A-CMB-BAL-Gxxx-xxx	48A-DMB-BAL-Gxxx-xxx
		Supply #5 port	48A-CMC-BAL-Gxxx-xxx	48A-DMC-BAL-Gxxx-xxx
	External		48A-CMD-BAM-Gxxx-xxx	48A-DMD-BAM-Gxxx-xxx

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ISO 1
ISO 2
ISO 3

STANDARD SOLENOID OPERATOR ►

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DC	24 V-/1,8W	B	60 cm	2	Locking	BT	Flying leads with light
DD	24 V-/2,5W	C	90 cm			KA	Mini connector
DF	24 V-/4,0W					KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

* Click here for other options available.
Latching solenoid also available, click here.
Note : AC voltage requires connector with rectifier.
Other options available for the 48 series valves, click here.

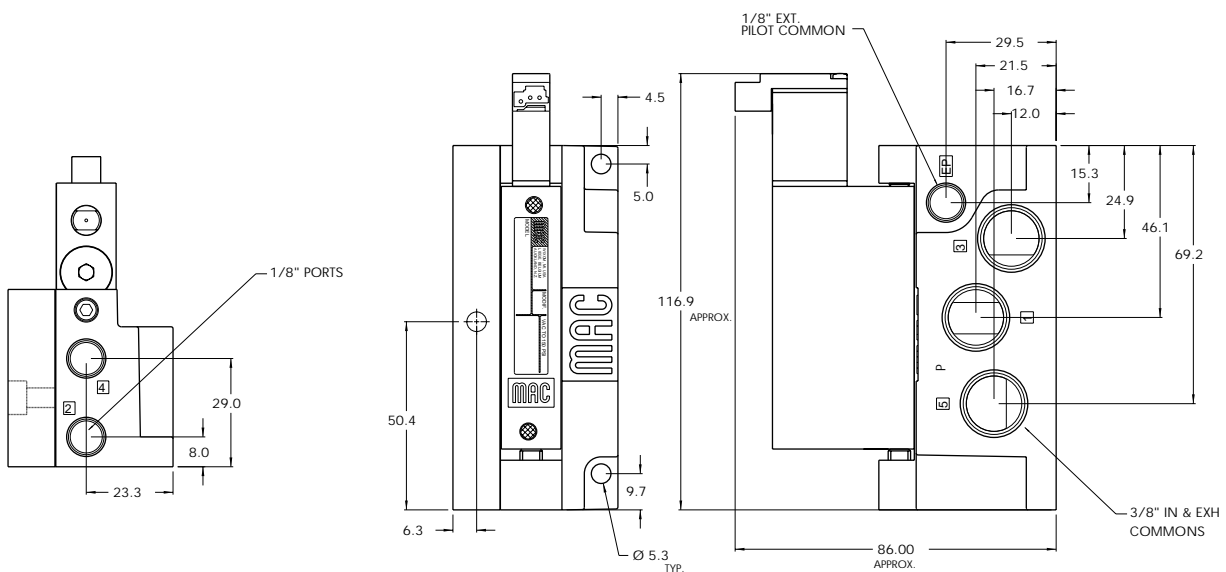
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

- Options :
- NPTF threads • Sandwich Flow controls: FC48A-BB
 - Sandwich regulator: see "regulators" section

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8"	1100 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/3 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	48A-AMA-000-GxxP-xxx	48A-BME-000-GxxP-xGA	48A-EME-000-GxxP-xGA	48A-FME-000-GxxP-xGA
	External	48A-AMD-000-GxxP-xxx	48A-BMH-000-GxxP-xGA	48A-EMH-000-GxxP-xGA	48A-FMH-000-GxxP-xGA
G1/8"	Internal	48A-AMA-BAA-GxxP-xxx	48A-BME-BAC-GxxP-xGA	48A-EME-BAC-GxxP-xGA	48A-FME-BAC-GxxP-xGA
	External	48A-AMD-BAB-GxxP-xxx	48A-BMH-BAD-GxxP-xGA	48A-EMH-BAD-GxxP-xGA	48A-FMH-BAD-GxxP-xGA

DUAL PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	48A-CMB-000-GxxP-xxx	48A-DMF-000-GxxP-xGA
		Supply #5 port	48A-CMC-000-GxxP-xxx	48A-DMG-000-GxxP-xGA
	External		48A-CMD-000-GxxP-xxx	48A-DMH-000-GxxP-xGA
M5	Internal	Supply #3 port	48A-CMB-BAA-GxxP-xxx	48A-DMF-BAC-GxxP-xGA
		Supply #5 port	48A-CMC-BAA-GxxP-xxx	48A-DMG-BAC-GxxP-xGA
	External		48A-CMD-BAB-GxxP-xxx	48A-DMH-BAD-GxxP-xGA

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	1	Non-locking	GA	Base plug-in
DC	24 V-/1,8W	2	Locking	DJ	Base plug-in
DD	24 V-/2,5W			DT	Base plug-in with LED light
DF	24 V-/4,0W			DD	Base plug-in with rectifier & light & ground

* Click here for other options available.
Latching solenoid also available, click here.
Note : AC voltage requires connector with rectifier - single solenoid only.
Other options available for the 48 series valves, click here.

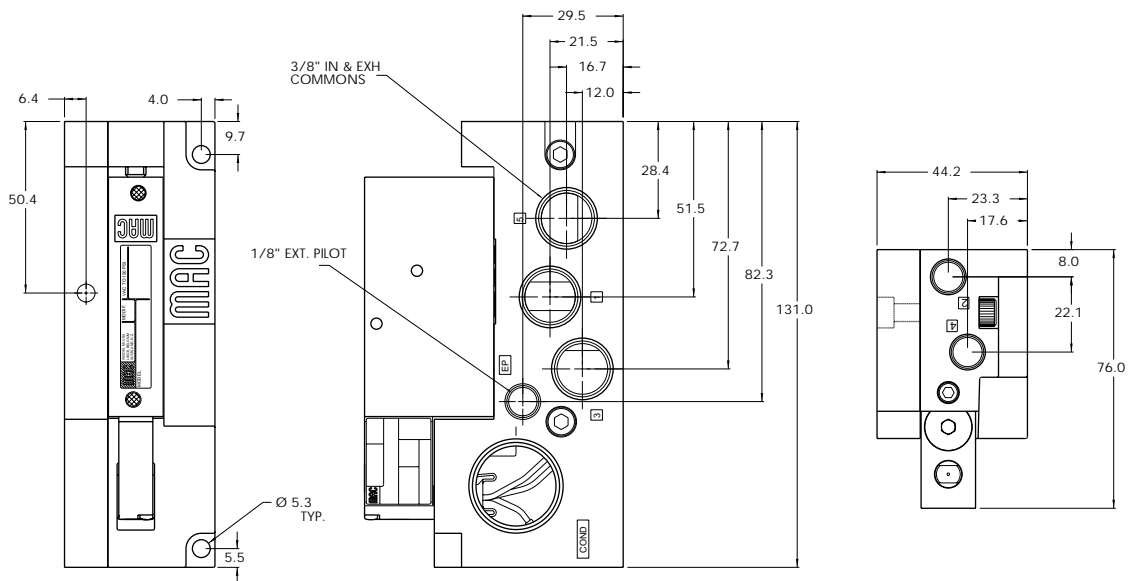
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

- Options :
- NPTF threads • Sandwich Flow controls: FC48A-AB
 - Sandwich regulator: see "regulators" section

DIMENSIONS

Dimensions shown are metric (mm)



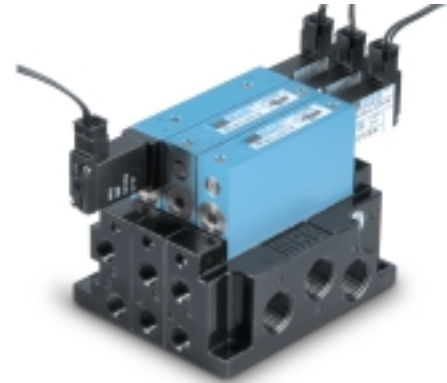


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G1/8"	1100 NI/min	Manifold base non "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



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HOW TO ORDER

SINGLE PRESSURE MODELS (MIDDLE STATION MANIFOLDS WITH SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	48A-AMA-000-Gxxx-xxx	48A-BMA-000-Gxxx-xxx	48A-EMA-000-Gxxx-xxx	48A-FMA-000-Gxxx-xxx
	External	48A-AMD-000-Gxxx-xxx	48A-BMD-000-Gxxx-xxx	48A-EMD-000-Gxxx-xxx	48A-FMD-000-Gxxx-xxx
G1/8"	Internal	48A-AMA-BJL-Gxxx-xxx	48A-BMA-BJL-Gxxx-xxx	48A-EMA-BJL-Gxxx-xxx	48A-FMA-BJL-Gxxx-xxx
	External	48A-AMD-BJM-Gxxx-xxx	48A-BMD-BJM-Gxxx-xxx	48A-EMD-BJM-Gxxx-xxx	48A-FMD-BJM-Gxxx-xxx

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DUAL PRESSURE MODELS (MIDDLE STATION MANIFOLDS WITH SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	48A-CMB-000-Gxxx-xxx	48A-DMB-000-Gxxx-xxx
		Supply #5 port	48A-CMC-000-Gxxx-xxx	48A-DMC-000-Gxxx-xxx
	External		48A-CMD-000-Gxxx-xxx	48A-DMD-000-Gxxx-xxx
G1/8"	Internal	Supply #3 port	48A-CMB-BJL-Gxxx-xxx	48A-DMB-BJL-Gxxx-xxx
		Supply #5 port	48A-CMC-BJL-Gxxx-xxx	48A-DMC-BJL-Gxxx-xxx
	External		48A-CMD-BJM-Gxxx-xxx	48A-DMD-BJM-Gxxx-xxx

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STANDARD SOLENOID OPERATOR ▶

G **XXX-XXX***

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	A	45 cm	1	Non-locking	BA	Flying leads
DC	24 V= /1,8W	B	60 cm	2	Locking	BT	Flying leads with light
DD	24 V-/2,5W	C	90 cm			KA	Mini connector
DF	24 V= /4,0W					KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

* Click here for other options available.
Latching solenoid also available, click here.
Note : - AC voltage requires connector with rectifier.
- Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K").
Other options available for the 48 series valves, click here.

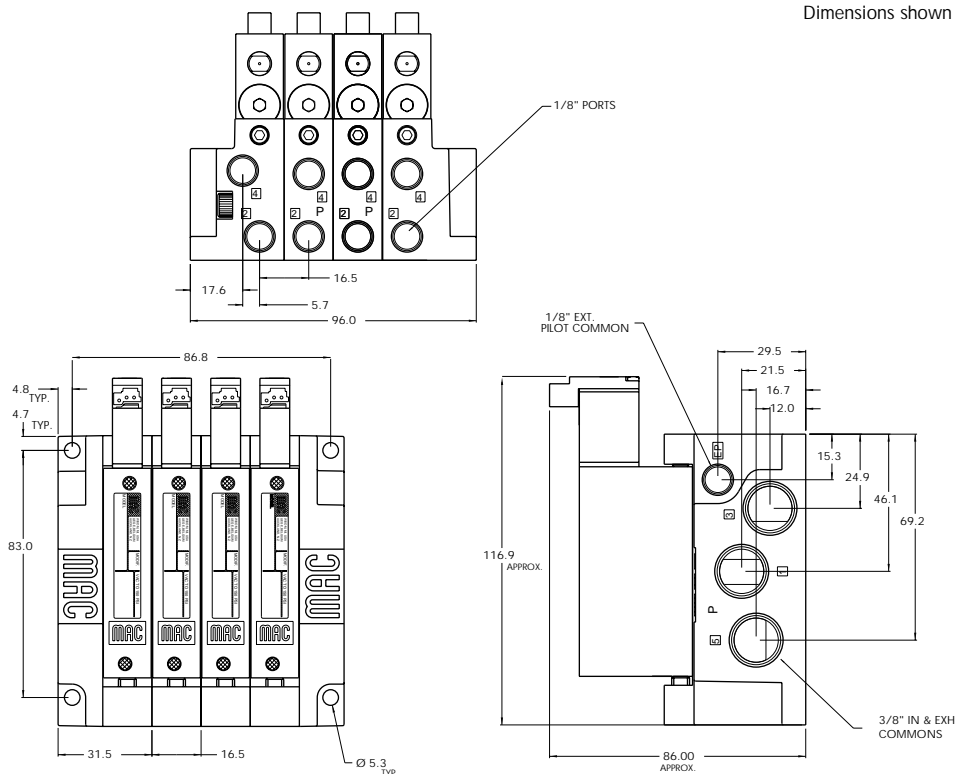
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times :	Energize : 6 ms
(with 4 W coil)	De-energize : 6 ms

- Options :
- NPTF threads • Sandwich flow controls: FC48A-BB
 - Sandwich regulator: see "regulators" section
 - Valve blanking plate: M-48004 • Isolator disk for inlet/exhaust: 28471

DIMENSIONS

Dimensions shown are metric (mm)



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



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G1/8"	1100 NI/min	Manifold base "plug-in"	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed centre	5/3 Open centre
Valve less base	Internal	48A-AMA-000-GxxP-xxx	48A-BME-000-GxxP-xGA	48A-EME-000-GxxP-xGA	48A-FME-000-GxxP-xGA
	External	48A-AMD-000-GxxP-xxx	48A-BMH-000-GxxP-xGA	48A-EMH-000-GxxP-xGA	48A-FMH-000-GxxP-xGA
M5	Internal	48A-AMA-BJA-GxxP-xxx	48A-BME-BJC-GxxP-xGA	48A-EME-BJC-GxxP-xGA	48A-FME-BJC-GxxP-xGA
	External	48A-AMD-BJB-GxxP-xxx	48A-BMH-BJD-GxxP-xGA	48A-EMH-BJD-GxxP-xGA	48A-FMH-BJD-GxxP-xGA

DUAL PRESSURE MODELS (LED STANDARD EXCEPT FOR SINGLE SOLENOIDS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure centre
Valve less base	Internal	Supply #3 port	48A-CMB-000-GxxP-xxx	48A-DMF-000-GxxP-xGA
		Supply #5 port	48A-CMC-000-GxxP-xxx	48A-DMG-000-GxxP-xGA
	External	48A-CMD-000-GxxP-xxx	48A-DMH-000-GxxP-xGA	48A-HMH-000-GxxP-xGA
M5	Internal	Supply #3 port	48A-CMB-BJC-GxxP-xxx	48A-DMF-BJC-GxxP-xGA
		Supply #5 port	48A-CMC-BJC-GxxP-xxx	48A-DMG-BJC-GxxP-xGA
	External	48A-CMD-BJD-GxxP-xxx	48A-DMH-BJD-GxxP-xGA	48A-HMH-BJD-GxxP-xGA

Above numbers are middle station manifold with side ports

STANDARD SOLENOID OPERATOR >

G **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection
AA	120 V-/2,5W	1	Non-locking	Double solenoid & 3 position models	
DC	24 V= /1,8W	2	Locking	GA Base plug-in	
DD	24 V= /2,5W			Single solenoid models	
DF	24 V= /4,0W			DJ Base plug-in	
				DT Base plug-in with LED light	
				DD Base plug-in with rectifier & light & ground	

* Click here for other options available.
 Latching solenoid also available, click here.
 Note : - AC voltage requires connector with rectifier.
 - Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K").
 Other options available for the 48 series valves, click here.

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TECHNICAL DATA

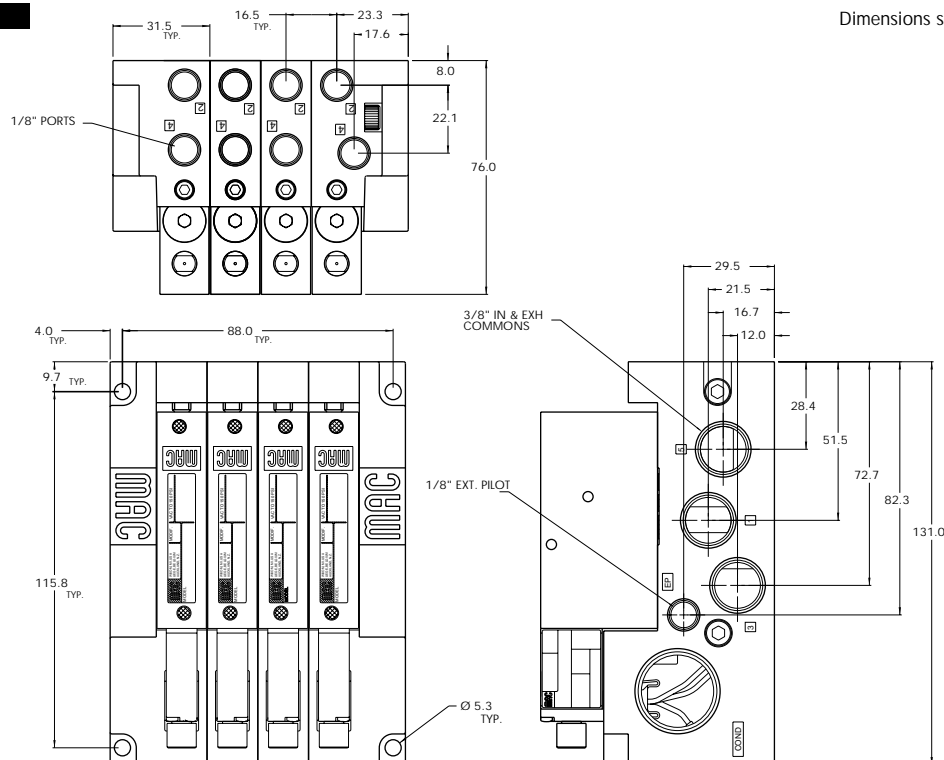
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

Options :

- NPTF threads • Sandwich flow controls: FC48A-AB
- Sandwich regulator: see "regulators" section
- Valve blanking plate: M-48004 • Isolator disk for inlet/exhaust: 28471
- Plug-in wire protector: 24180

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2	G1/8"	1100 NI/min	Sub-base/ manifold base non "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single pressure
Valve less base	Internal	48A-AMA-000-Lxxx-xxx
	External	48A-AMD-000-Lxxx-xxx
G1/8"	Internal	48A-AMA-BAL-Lxxx-xxx
	External	48A-AMD-BAM-Lxxx-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Dual pressure	
Valve less base	Internal	Supply #3 port	48A-CMB-000-Lxxx-xxx
		Supply #5 port	48A-CMC-000-Lxxx-xxx
	External		48A-CMD-000-Lxxx-xxx
G1/8"	Internal	Supply #3 port	48A-CMB-BAL-Lxxx-xxx
		Supply #5 port	48A-CMC-BAL-Lxxx-xxx
	External		48A-CMD-BAM-Lxxx-xxx

LATCHING SOLENOID ►

L XXX-XXX*	
XX Voltage	X Wire length
DF 24 VDC/4.0W	A 45 cm
HA 24 VDC/1.95W	B 60 cm
	C 90 cm
X Manual operator	XX Electrical connection
0 No operator	BA 2 Wire flying leads
	BJ 4 Wire flying leads
	KA 2 Wire Plug-in assembly
	KE 4 Wire Plug-in assembly
	LA 3 Wire Plug-in assembly (Polarity Switching Cover)

* Click here for other options available.

Note : Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K"). Other options available for the 48 series valves, click here.



100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

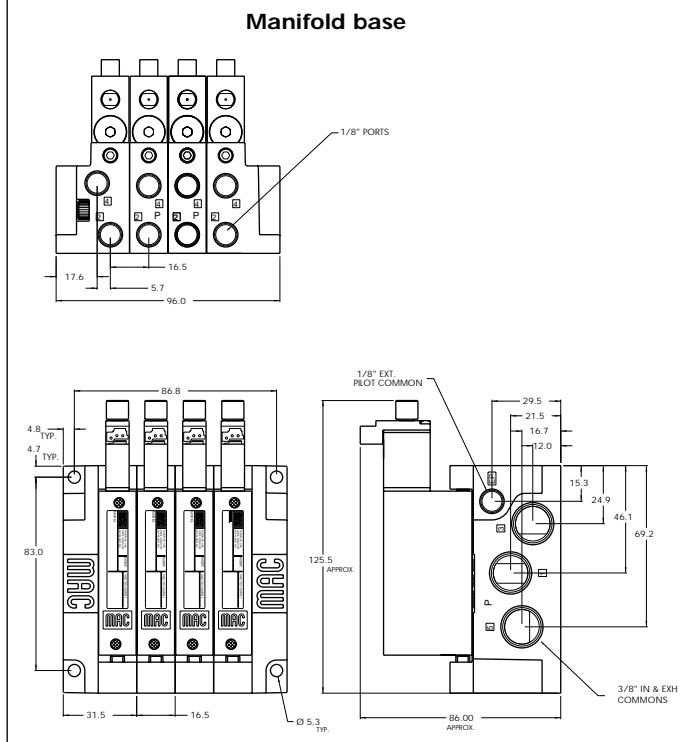
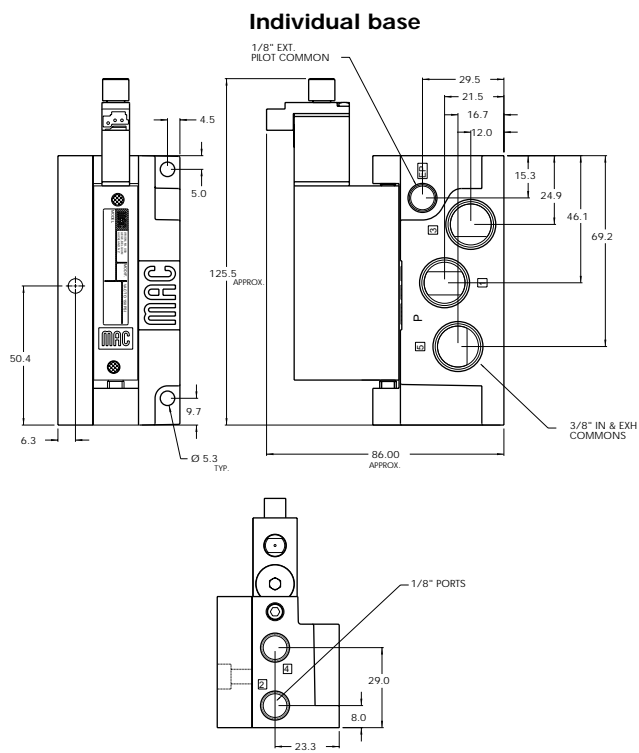
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

- Options :
- NPTF threads • Sandwich flow controls: FC48A-BB
 - Sandwich regulator: see "regulators" section
 - Valve blanking plate: M-48004 • Isolator disk for inlet/exhaust: 28471

DIMENSIONS

Dimensions shown are metric (mm)



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

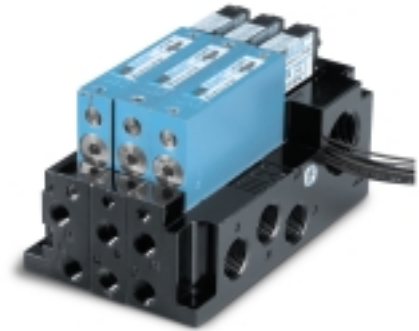


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2	G1/8"	1000 NI/min	Sub-base/ manifold base "plug-in" with latching solenoid	

OPERATIONAL BENEFITS

1. 4-way valve with 4-way integral pilot.
2. 16 mm valve (stacks on 16.5 mm centers).
3. High flow (up to 1100 NI/min).
4. Fast repeatable response times.
5. Maximum shifting forces in both directions.
6. Long life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single pressure
Valve less base	Internal	48A-AMA-000-LxxP-xxx
	External	48A-AMD-000-LxxP-xxx
G1/8"	Internal	48A-AMA-BAA-LxxP-xxx
	External	48A-AMD-BAB-LxxP-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Dual pressure	
Valve less base	Internal	Supply #3 port	48A-CMB-000-LxxP-xxx
		Supply #5 port	48A-CMC-000-LxxP-xxx
	External		48A-CMD-000-LxxP-xxx
G1/8"	Internal	Supply #3 port	48A-CMB-BAA-LxxP-xxx
		Supply #5 port	48A-CMC-BAA-LxxP-xxx
	External		48A-CMD-BAB-LxxP-xxx

LATCHING SOLENOID ►

L **XX** P-**XXX***

XX	Voltage	X	Manual operator	XX	Electrical connection**
DF	24 VDC/4.0W	0	No operator	DA	Plug-in
DN	12 VDC/4.0W			EA	Plug-in 3 PIN (Polarity Switching Cover)
HA	24 VDC/1.95W				
HE	12 VDC/1.95W				

* Click here for other options available.

** For latching solenoid 2 and 4 wire, use electrical connector DA, DB, DC or DD. For 3 wire latching, use the "EA" connector. Other options available for the 48 series valves, click here.

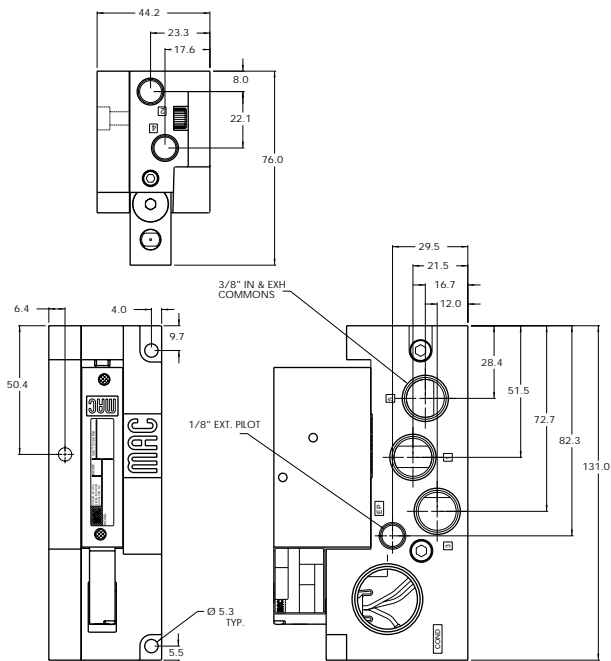
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 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
Orifice :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	1/8" side ports: 1000 NI/min (Cv 1,0) – 1/8" bottom ports : 1100 NI/min (Cv 1.1)
Coil :	Epoxy encapsulated – 100% ED – Class A wire
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (electrical connection)
Power :	1.0 to 4.0 W
Response times : (with 4 W coil)	Energize : 6 ms De-energize : 6 ms

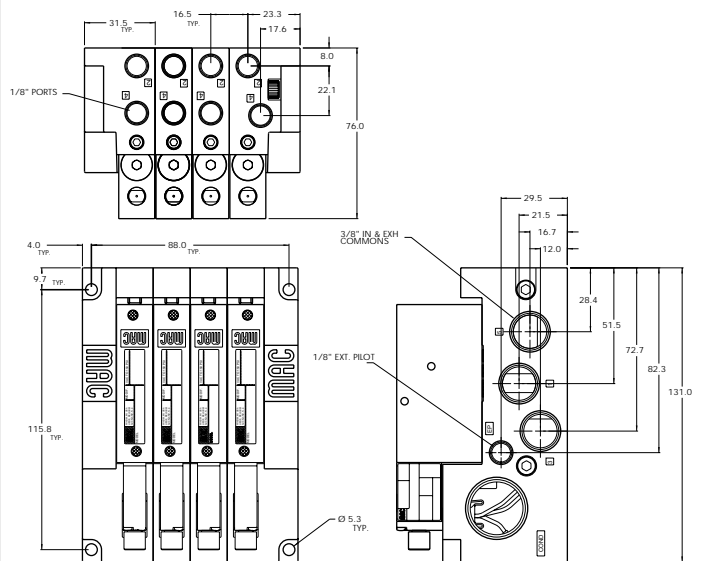
- Options :
- NPTF threads • Sandwich flow controls: FC48A-AB
 - Sandwich regulator: see "regulators" section
 - Valve blanking plate: M-48004 • Isolator disk for inlet/exhaust: 28471
 - Plug-in wire protector : 24180

DIMENSIONS

Individual base



Dimensions shown are metric (mm)
Manifold base



OPTIONS FOR NON PLUG-IN VALVES	34
<p>Base type :</p> <p>Individual base</p> <p>48A-XXX-XAX-Gxxx-xxx</p> <ul style="list-style-type: none"> A Individual base – Side port B Individual base – Bottom port 	36
<p>Manifold base</p> <p>48A-XXX-XJX-Gxxx-xxx</p> <ul style="list-style-type: none"> J Manifold base – Side ports K Manifold base – Bottom ports L Left end manifold base – Side ports M Left end manifold base - Bottom ports N Right end manifold base –Side ports P Right end manifold base – Bottom ports 	32
<p>Universal spool</p> <p>48A-RXX-XXX-Gxxx-xxx</p> <ul style="list-style-type: none"> R 2 position single solenoid universal spool S 2 position double solenoid universal spool 	37
<p>Base only :</p> <p>48A-000-XXX (i.e. 48A-000-BAL) - Individual base</p> <p>48A-000-XXX (i.e. 48A-000-BJL) - Manifold base</p>	38
<p>Pilot style :</p> <p>48A-XXM-XXX-Gxxx-xxx</p> <ul style="list-style-type: none"> M Pilot exhaust muffled R Pilot exhaust piped (M5) U Pilot exhaust to main exhaust 	52
<p>Base/Manifold configurations for LATCHING SOLENOID VALVES :</p> <p>48A-xxx-xAx-Lxxx-xxx</p> <ul style="list-style-type: none"> A Individual base – Side port B Individual base – Bottom port J Manifold base – Side ports K Manifold base – Bottom ports L Left end manifold base - Side ports M Left end manifold base - Bottom ports N Right end manifold base - Side ports P Right end manifold base - Bottom ports 	67
	44
	46
	42
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	48
	400
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	93
	ISO 1
	ISO 2
	ISO 3



Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Base type :

Individual base

48A-XXX-**AX**-GxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port

Manifold base

48A-XXX-**XJX**-GxxP-xxx

- J** Manifold base – Side ports
- K** Manifold base – Bottom ports
- L** Left end manifold base – Side ports
- M** Left end manifold base - Bottom ports
- N** Right end manifold base –Side ports
- P** Right end manifold base – Bottom ports

Universal spool

48A-**RXX**-XXX-GxxP-xxx

- R** 2 position single solenoid universal spool
- S** 2 position double solenoid universal spool

Base only :

48A-000-XXX (i.e. 48A-000-BAA)

- Individual base wired for a single solenoid valve

48A-000-XXX (i.e. 42A-000-BJC)

- Manifold base wired for a double solenoid valve

For LED with diode (2 & 3 position double solenoid valves)

48A-**XXJ**-XXX-GxxP-**xGA**

- J** Internal pilot single pressure
- K** Internal pilot dual pressure supply from #3 port
- L** Internal pilot dual pressure supply from #5 port
- M** External pilot

Pilot style :

48A-**MX**-XXX-GxxP-xxx

- M** Pilot exhaust muffled
- R** Pilot exhaust piped (M5)
- U** Pilot exhaust to main exhaust

Base/Manifold configurations for LATCHING SOLENOID VALVES :

48A-xxx-**AX**-LxxP-xxx

- A** Individual base – Side port
- B** Individual base – Bottom port
- J** Manifold base – Side ports
- K** Manifold base – Bottom ports
- L** Left end manifold base - Side ports
- M** Left end manifold base - Bottom ports
- N** Right end manifold base - Side ports
- P** Right end manifold base - Bottom ports

Base/Manifold options for int./ext. pilot for LATCHING SOLENOID VALVES :

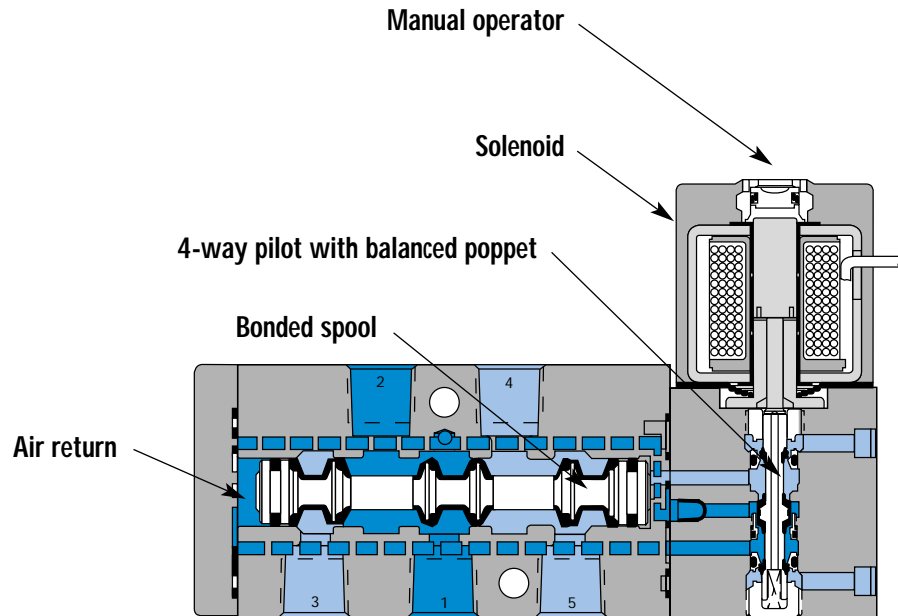
48A-xxx-xx**A**-LxxP-xxx

- A** Plug-in Int. Pilot – 2 Wire Latching
- B** Plug-in Ext. Pilot – 2 Wire Latching
- C** Plug-in Int. Pilot – 3 Wire Latching
- D** Plug-in Ext. Pilot – 3 Wire Latching
- E** Plug-in Int. Pilot – 4 Wire Latching
- F** Plug-in Ext. Pilot – 4 Wire Latching

Individual mounting

Inline	Sub-base non "plug-in"
--------	------------------------

Series



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ISO 1

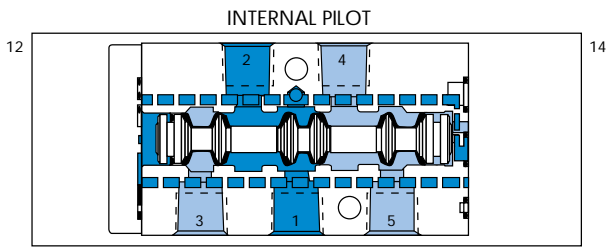
ISO 2

ISO 3

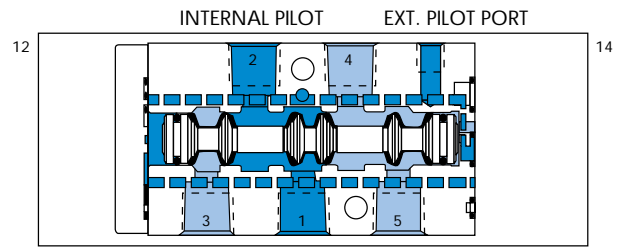
SERIES FEATURES

- Patented MACSOLENOID® for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Various manual operators.
- Optional memory spring.
- 2 position or 3 position valve configurations.
- Internal or external pilot.

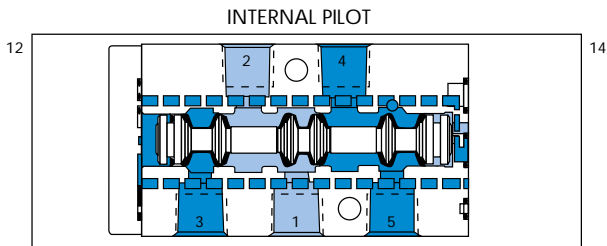
SPOOL CONFIGURATIONS



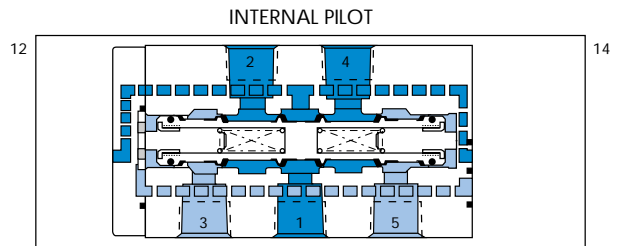
SINGLE OPERATOR - SINGLE INLET
SHOWN WITH 12 OPERATOR ENERGIZED



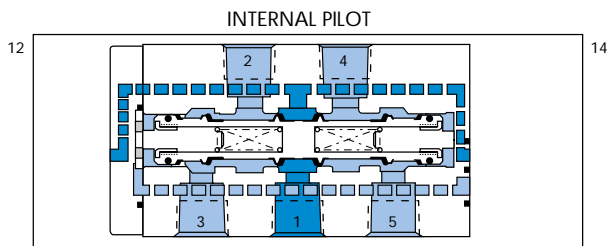
SINGLE OPERATOR - SINGLE INLET
SHOWN WITH 12 OPERATOR ENERGIZED



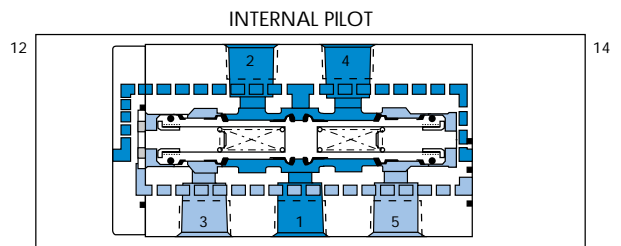
SINGLE OPERATOR - DUAL INLET
SHOWN WITH 12 OPERATOR ENERGIZED



3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION PRESSURE CENTER

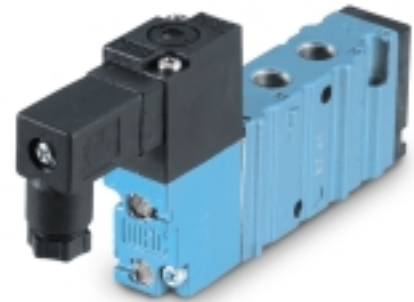


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8" - G1/4"	1000 NI/min	Inline	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Wiping effect eliminates sticking.
7. Long service life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
G1/8"	Internal	411A-C0A-XX-Xxxx-xxx	421A-C0A-XX-Xxxx-xxx	451A-C0A-XX-Xxxx-xxx	461A-C0A-XX-Xxxx-xxx	471A-C0A-XX-Xxxx-xxx
G1/4"	Internal	411A-D0A-XX-Xxxx-xxx	421A-D0A-XX-Xxxx-xxx	451A-D0A-XX-Xxxx-xxx	461A-D0A-XX-Xxxx-xxx	471A-D0A-XX-Xxxx-xxx
G1/8"	External	411A-C0B-XX-Xxxx-xxx	421A-C0B-XX-Xxxx-xxx	451A-C0B-XX-Xxxx-xxx	461A-C0B-XX-Xxxx-xxx	471A-C0B-XX-Xxxx-xxx
G1/4"	External	411A-D0B-XX-Xxxx-xxx	421A-D0B-XX-Xxxx-xxx	451A-D0B-XX-Xxxx-xxx	461A-D0B-XX-Xxxx-xxx	471A-D0B-XX-Xxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT – PILOT PRESSURE SUPPLY FROM #5 PORT)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
G1/8"	Internal	431A-C0A-XX-Xxxx-xxx	441A-C0A-XX-Xxxx-xxx
G1/4"	Internal	431A-D0A-XX-Xxxx-xxx	441A-D0A-XX-Xxxx-xxx
G1/8"	External	431A-C0B-XX-Xxxx-xxx	441A-C0B-XX-Xxxx-xxx
G1/4"	External	431A-D0B-XX-Xxxx-xxx	441A-D0B-XX-Xxxx-xxx

SOLENOID OPERATOR ➤

DM-D XXX-XXX*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V~/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V~/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V~/50Hz	J	Connector			JB	Rectangular connector
FB	24 V~/1,8W					JD	Rectangular connector with light
DA	24 V~/5,4W					BA	Flying leads
DF	24 V~/12,7W						

SOLENOID OPERATOR ➤

GM-G XXX-XXX**

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DC	24V~/1,8W	A	45 cm	1	Non-locking	BA	Flying leads
DD	24V~/2,5W	B	60 cm	2	Locking	BT	Flying leads with light
DF	24V~/4,0W	C	90 cm			KA	Mini connector
						KT	Mini connector with light

* Click here for other options available.
 ** Click here for other options available.

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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos. : 1,3 to 8 bar (with memory spring: 2 to 8 bar) 3 pos.: 2,3 to 8 bar External pilot : vacuum to 8 bar
Pilot pressure :	2 position: 1,3 to 8 bar (with memory spring: 2 to 8 bar) 3 position: 2,3 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
Orifice :	6,2 mm
Flow (at 6 bar, ΔP=1bar) :	1000 NI/min (Cv 1.0)
Coil :	Epoxy encapsulated – class A wire – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (GM pilot) – IP65 (DM pilot) (Electrical connection)
Power :	-Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V~/5.4W Energize : 7.3 ms De-energize : 5.3 ms 110V~/50Hz Energize : 8-12 ms De-energize : 7-11 ms

Options :

- NPTF threads • Namur interface (specify mod. 1080 after model)

411A-C0A-XX-XXXX-XXX

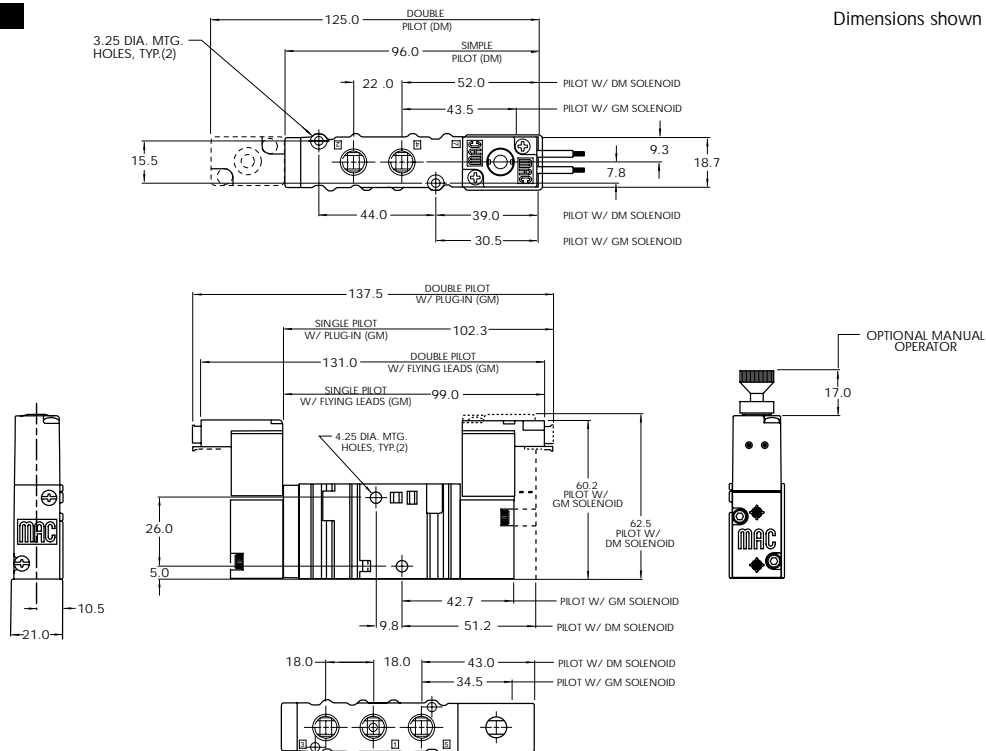
- Dual pressure models, replace by **C** for pilot supply from #3 port
- For memory spring, replace by **4** (single operator models only)
- Replace by **8** for 3 position dual pressure, pressure centre

Spare parts :

- DM pilot body pressure seal: 16542 • DM pilot spacer plate: 24168-01.

DIMENSIONS

Dimensions shown are metric (mm)



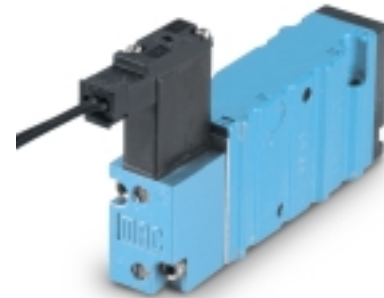


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8" - G1/4"	1000 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Wiping effect eliminates sticking.
7. Long service life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
Valve only	Internal	413A-00A-XX-Xxxx-xxx	423A-00A-XX-Xxxx-xxx	453A-00A-XX-Xxxx-xxx	463A-00A-XX-Xxxx-xxx	473A-00A-XX-Xxxx-xxx
	External	413A-00D-XX-Xxxx-xxx	423A-00D-XX-Xxxx-xxx	453A-00D-XX-Xxxx-xxx	463A-00D-XX-Xxxx-xxx	473A-00D-XX-Xxxx-xxx
G1/8"	Internal	413A-CAA-XX-Xxxx-xxx	423A-CAA-XX-Xxxx-xxx	453A-CAA-XX-Xxxx-xxx	463A-CAA-XX-Xxxx-xxx	473A-CAA-XX-Xxxx-xxx
G1/4"		413A-DAA-XX-Xxxx-xxx	423A-DAA-XX-Xxxx-xxx	453A-DAA-XX-Xxxx-xxx	463A-DAA-XX-Xxxx-xxx	473A-DAA-XX-Xxxx-xxx
G1/8"	External	413A-CAB-XX-Xxxx-xxx	423A-CAB-XX-Xxxx-xxx	453A-CAB-XX-Xxxx-xxx	463A-CAB-XX-Xxxx-xxx	473A-CAB-XX-Xxxx-xxx
G1/4"		413A-DAB-XX-Xxxx-xxx	423A-DAB-XX-Xxxx-xxx	453A-DAB-XX-Xxxx-xxx	463A-DAB-XX-Xxxx-xxx	473A-DAB-XX-Xxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT – PILOT PRESSURE SUPPLY FROM #5 PORT)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
Valve only	Internal	433A-00A-XX-Xxxx-xxx	443A-00A-XX-Xxxx-xxx
	External	433A-00D-XX-Xxxx-xxx	443A-00D-XX-Xxxx-xxx
G1/8"	Internal	433A-CAA-XX-Xxxx-xxx	443A-CAA-XX-Xxxx-xxx
G1/4"		433A-DAA-XX-Xxxx-xxx	443A-DAA-XX-Xxxx-xxx
G1/8"	External	433A-CAD-XX-Xxxx-xxx	443A-CAD-XX-Xxxx-xxx
G1/4"		433A-DAD-XX-Xxxx-xxx	443A-DAD-XX-Xxxx-xxx

SOLENOID OPERATOR ▶

DM-D XXX-XXX*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V=/1,8W					JD	Rectangular connector with light
DA	24 V=/5,4W					BA	Flying leads
DF	24 V=/12,7W						

SOLENOID OPERATOR ▶

GM-G XXX-XXX**

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DC	24V=/1,8W	A	45 cm	1	Non-locking	BA	Flying leads
DD	24V=/2,5W	B	60 cm	2	Locking	BT	Flying leads with light
DF	24V=/4,0W	C	90 cm			KA	Mini connector
						KT	Mini connector with light

* Click here for other options available.

** Click here for other options available.

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

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ISO 1

ISO 2

ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos. : 1,3 to 8 bar (with memory spring: 2 to 8 bar) 3 pos.: 2,3 to 8 bar External pilot : vacuum to 8 bar
Pilot pressure :	2 position: 1,3 to 8 bar (with memory spring: 2 to 8 bar) 3 position: 2,3 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
Orifice :	6,2 mm
Flow (at 6 bar, ΔP=1bar) :	1000 NI/min (Cv 1.0)
Coil :	Epoxy encapsulated – class A wire – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP54 (GM pilot) – IP65 (DM pilot) (Electrical connection)
Power :	-Inrush : 10.9 VA Holding : 7.7 VA = 1.8 to 12.7 W
Response times :	24 V~/5.4W Energize : 7.3 ms De-energize : 5.3 ms 110V~/50Hz Energize : 8-12 ms De-energize : 7-11 ms

Options :

- NPTF threads

413A-CAA-XX-XXX-XXX

- Dual pressure models, replace by **C** for pilot supply from #3 port
- For flow control, replace by **B**
- For memory spring, replace by **6**

Base only :

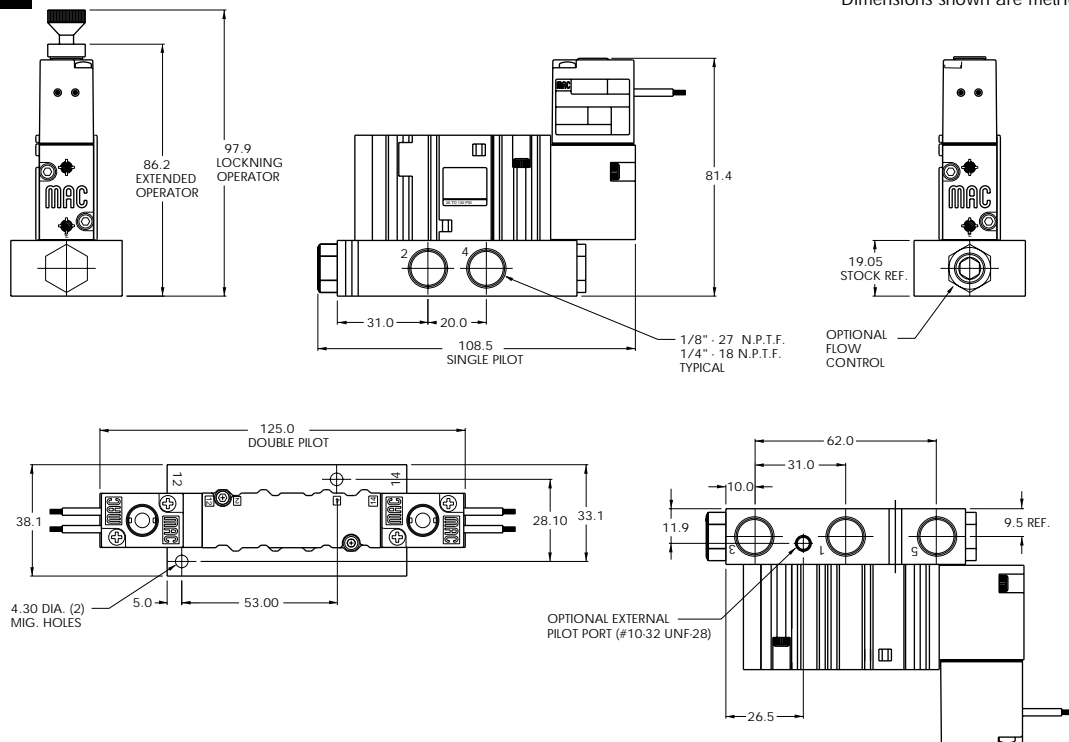
400A-XXX (i.e. 400A-CAA)

Spare parts :

- Body to base seal: 16525 • Flow control assembly: N-04001 • Body mounting screws (x2): 35043.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"
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Series

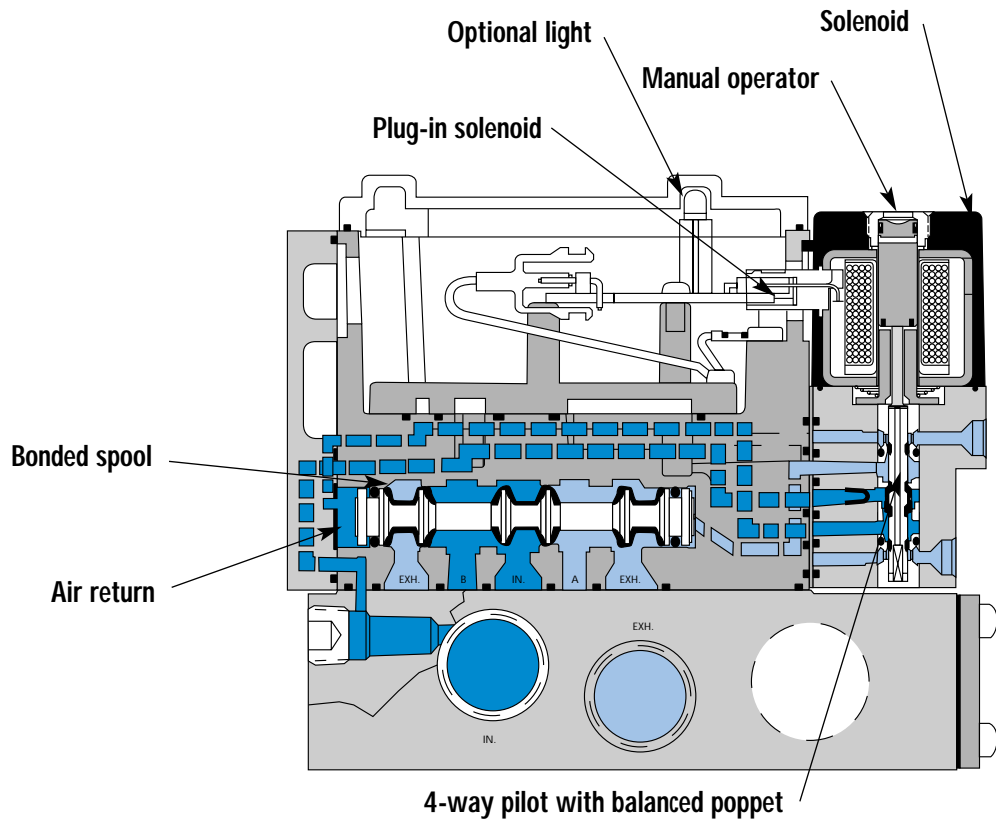
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Manifold mounting

Sub-base non "plug-in"	Sub-base "plug-in"
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ISO 1

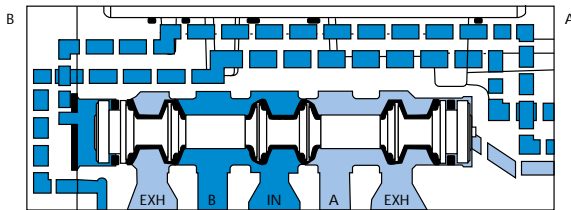
ISO 2

ISO 3

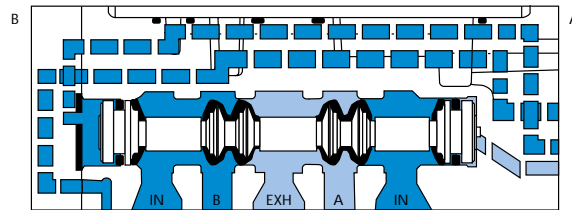
SERIES FEATURES

- Patented MACSOLENOID[®] for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Optional memory spring.
- Plug-in design of valves and bases for ease of maintenance.
- 2 position or 3 position valve configurations.

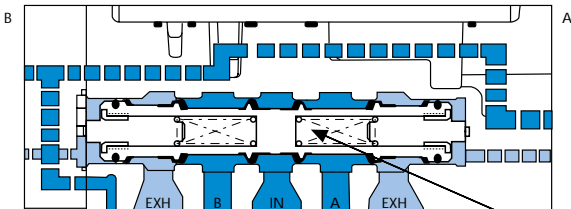
SPOOL CONFIGURATIONS



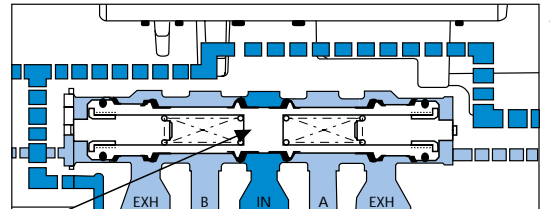
2 POSITION SINGLE PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED



2 POSITION DUAL PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED

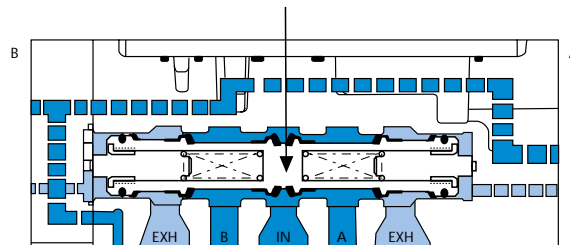


3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER

SPRING CENTERING



3 POSITION SINGLE PRESSURE, PRESSURE CENTER

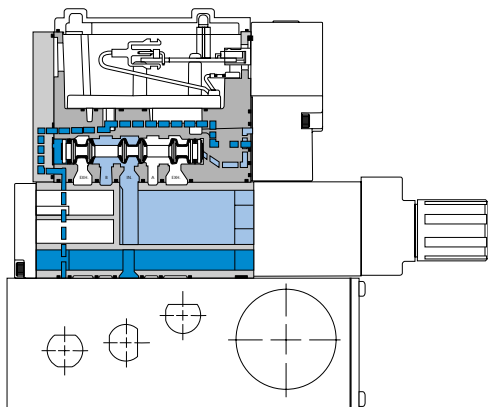
REGULATOR CONFIGURATIONS

SINGLE REGULATOR - SINGLE PRESSURE

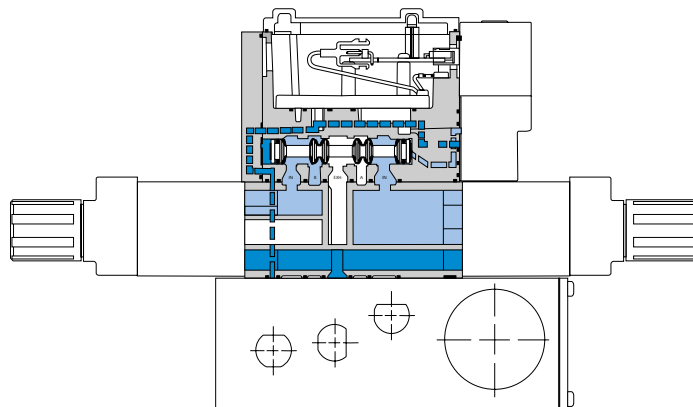
Pressure supplied to the individual or manifold base passes through the regulator. Regulated pressure is supplied to the pressure path of the valve.

DUAL REGULATOR - DUAL PRESSURE

Pressure supplied from each regulator is divided in the block. Regulated pressure from "A" regulator supplies cylinder port "A". Regulated pressure from "B" regulator supplies cylinder port "B". Dual pressure regulators require dual pressure spool in valve.



MANIFOLD WITH REGULATOR - SINGLE PRESSURE



MANIFOLD WITH REGULATOR - DUAL PRESSURE

Note: For both single and dual pressure, air supply to the pilot system is never regulated.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8" - G1/4" - G3/8"	1200 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow; short and consistent response times.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
Valve less base		92B-ABA-000-DM-Dxxx-xxx	92B-BBA-000-DM-Dxxx-xxx	92B-EBA-000-DM-Dxxx-xxx	92B-FBA-000-DM-Dxxx-xxx	92B-GBA-000-DM-Dxxx-xxx
G1/8"	Internal	92B-ABA-DAG-DM-Dxxx-xxx	92B-BBA-DAG-DM-Dxxx-xxx	92B-EBA-DAG-DM-Dxxx-xxx	92B-FBA-DAG-DM-Dxxx-xxx	92B-GBA-DAG-DM-Dxxx-xxx
G1/4"		92B-ABA-EAG-DM-Dxxx-xxx	92B-BBA-EAG-DM-Dxxx-xxx	92B-EBA-EAG-DM-Dxxx-xxx	92B-FBA-EAG-DM-Dxxx-xxx	92B-GBA-EAG-DM-Dxxx-xxx
G3/8"		92B-ABA-FAG-DM-Dxxx-xxx	92B-BBA-FAG-DM-Dxxx-xxx	92B-EBA-FAG-DM-Dxxx-xxx	92B-FBA-FAG-DM-Dxxx-xxx	92B-GBA-FAG-DM-Dxxx-xxx
G1/8"	External	92B-ABA-DAH-DM-Dxxx-xxx	92B-BBA-DAH-DM-Dxxx-xxx	92B-EBA-DAH-DM-Dxxx-xxx	92B-FBA-DAH-DM-Dxxx-xxx	92B-GBA-DAH-DM-Dxxx-xxx
G1/4"		92B-ABA-EAH-DM-Dxxx-xxx	92B-BBA-EAH-DM-Dxxx-xxx	92B-EBA-EAH-DM-Dxxx-xxx	92B-FBA-EAH-DM-Dxxx-xxx	92B-GBA-EAH-DM-Dxxx-xxx
G3/8"		92B-ABA-FAH-DM-Dxxx-xxx	92B-BBA-FAH-DM-Dxxx-xxx	92B-EBA-FAH-DM-Dxxx-xxx	92B-FBA-FAH-DM-Dxxx-xxx	92B-GBA-FAH-DM-Dxxx-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
Valve less base		92B-CBA-000-DM-Dxxx-xxx	92B-DBA-000-DM-Dxxx-xxx
G1/8"	Internal	92B-CBA-DAG-DM-Dxxx-xxx	92B-DBA-DAG-DM-Dxxx-xxx
G1/4"		92B-CBA-EAG-DM-Dxxx-xxx	92B-DBA-EAG-DM-Dxxx-xxx
G3/8"		92B-CBA-FAG-DM-Dxxx-xxx	92B-DBA-FAG-DM-Dxxx-xxx
G1/8"	External	92B-CBA-DAH-DM-Dxxx-xxx	92B-DBA-DAH-DM-Dxxx-xxx
G1/4"		92B-CBA-EAH-DM-Dxxx-xxx	92B-DBA-EAH-DM-Dxxx-xxx
G3/8"		92B-CBA-FAH-DM-Dxxx-xxx	92B-DBA-FAH-DM-Dxxx-xxx

SOLENOID OPERATOR >

DM-D xxx-xxx*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm (Flying leads)	1	Non-locking	BM	Flying leads
JB	220 V-/50Hz	B	60 cm (Flying leads)	2	Locking	BN	Flying leads with diode
JC	24 V-/50Hz	J	Connector			BP	Flying leads with M.O.V.
FB	24 V-/1,8W					BG	Flying leads with ground
DA	24 V-/5,4W					JB	Rectangular connector
DF	24 V-/12,7W					JD	Rectangular connector with light
						KA	Square connector

* Click here for other options available.
Other options available for the 92 series valves, click here.

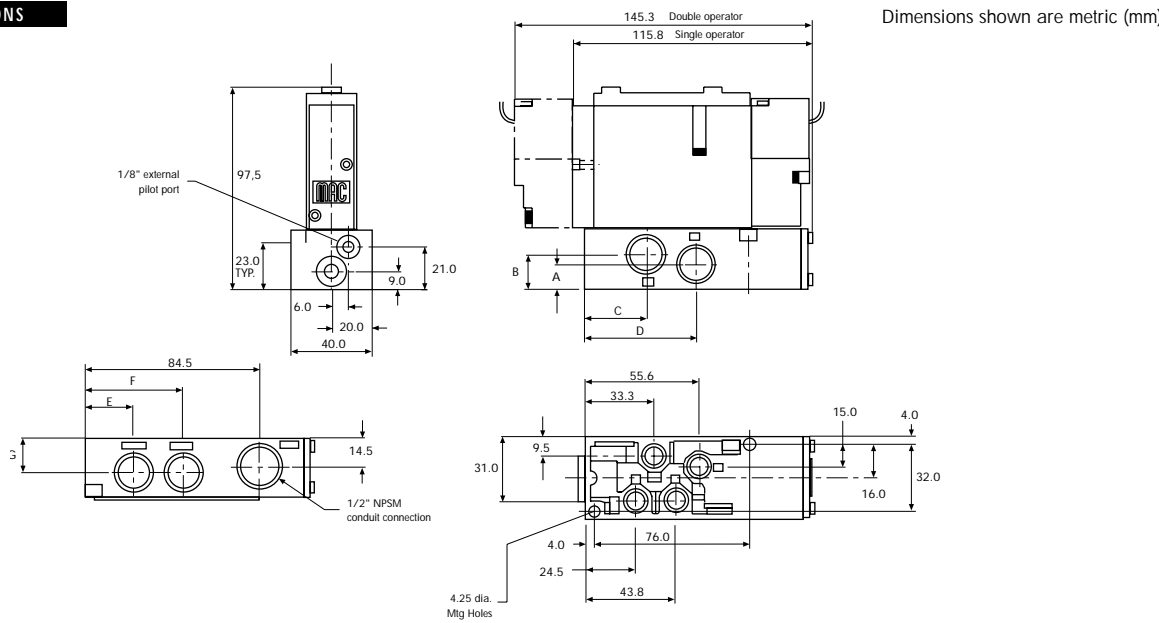
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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1,3 to 8 bar	3 position : 2,3 to 8 bar	
	External pilot : vacuum to 8 bar	3 position : 2,3 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		
Orifice :	6,2 mm		
Flow (at 6 bar, ΔP=1bar) :	1/8": 1000NI/min (Cv 1.0) – 1/4": 1100 NI/min (Cv 1.1) – 3/8": 1200 NI/min (Cv 1.2)		
Coil :	Epoxy encapsulated – class A – 100%ED (specify mod 0449)		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	IP65 (electrical connection)		
Power :	~Inrush 7,6 VA Holding : 4,8 VA = 1,8 to 12,7 W		
Response times :	24V~/5,4W	Energize : 8 ms	De-energize : 7 ms
	120V~/60Hz	Energize : 7-13 ms	De-energize : 12-20 ms

- Options : • NPTF thread. • Sandwich flow control: FC92B-CA
- Spare parts : • Pilot valve DM-Dxxx-xxx • Valve blanking plate: M-92002
 • Pressure seal between valve and base : 16543. • Mounting screws valve to base (X2) : 35050.

DIMENSIONS



DIM.	A	B	C	D	E	F	G
G1/8"	12.5	18.0	31.0	54.0	23.5	46.5	18.0
G1/4"	12.5	18.0	31.0	54.0	23.5	46.5	18.0
G3/8"	12.0	17.0	30.0	54.0	23.5	47.5	17.0



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/8" - G1/4" - G3/8"	1200 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow; short and consistent response times.

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HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
Valve less base		92B-AAA-000-DM-DxxP-xxx	92B-BAA-000-DM-DxxP-xxx	92B-EAA-000-DM-DxxP-xxx	92B-FAA-000-DM-DxxP-xxx	92B-GAA-000-DM-DxxP-xxx
G1/8"	Internal	92B-AAA-DAA-DM-DxxP-xxx	92B-BAA-DAA-DM-DxxP-xxx	92B-EAA-DAA-DM-DxxP-xxx	92B-FAA-DAA-DM-DxxP-xxx	92B-GAA-DAA-DM-DxxP-xxx
G1/4"		92B-AAA-EAA-DM-DxxP-xxx	92B-BAA-EAA-DM-DxxP-xxx	92B-EAA-EAA-DM-DxxP-xxx	92B-FAA-EAA-DM-DxxP-xxx	92B-GAA-EAA-DM-DxxP-xxx
G3/8"		92B-AAA-FAA-DM-DxxP-xxx	92B-BAA-FAA-DM-DxxP-xxx	92B-EAA-FAA-DM-DxxP-xxx	92B-FAA-FAA-DM-DxxP-xxx	92B-GAA-FAA-DM-DxxP-xxx
G1/8"	External	92B-AAA-DAD-DM-DxxP-xxx	92B-BAA-DAD-DM-DxxP-xxx	92B-EAA-DAD-DM-DxxP-xxx	92B-FAA-DAD-DM-DxxP-xxx	92B-GAA-DAD-DM-DxxP-xxx
G1/4"		92B-AAA-EAD-DM-DxxP-xxx	92B-BAA-EAD-DM-DxxP-xxx	92B-EAA-EAD-DM-DxxP-xxx	92B-FAA-EAD-DM-DxxP-xxx	92B-GAA-EAD-DM-DxxP-xxx
G3/8"		92B-AAA-FAD-DM-DxxP-xxx	92B-BAA-FAD-DM-DxxP-xxx	92B-EAA-FAD-DM-DxxP-xxx	92B-FAA-FAD-DM-DxxP-xxx	92B-GAA-FAD-DM-DxxP-xxx

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DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
Valve less base		92B-CAA-000-DM-DxxP-xxx	92B-DAA-000-DM-DxxP-xxx
G1/8"	Internal	92B-CAA-DAA-DM-DxxP-xxx	92B-DAA-DAA-DM-DxxP-xxx
G1/4"		92B-CAA-EAA-DM-DxxP-xxx	92B-DAA-EAA-DM-DxxP-xxx
G3/8"		92B-CAA-FAA-DM-DxxP-xxx	92B-DAA-FAA-DM-DxxP-xxx
G1/8"	External	92B-CAA-DAD-DM-DxxP-xxx	92B-DAA-DAD-DM-DxxP-xxx
G1/4"		92B-CAA-EAD-DM-DxxP-xxx	92B-DAA-EAD-DM-DxxP-xxx
G3/8"		92B-CAA-FAD-DM-DxxP-xxx	92B-DAA-FAD-DM-DxxP-xxx

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ISO 1
ISO 2
ISO 3

SOLENOID OPERATOR ➤

DM-D **XX** P-**XXX***

Above models are shown with side ports.

XX	Voltage	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	1	Non-locking	DM	Plug-in
JB	220 V-/50Hz	2	Locking	DN	Plug-in with diode
JC	24 V-/50Hz			DP	Plug-in with M.O.V.
FB	24 V= /1,8W			DG	Plug-in with diode & ground
DA	24 V= /5,4W			DJ	Plug-in with M.O.V. & ground
DF	24 V= /12,7W				

* Click here for other options available.
Note: Ground required for 30 Volts or higher.
Other options available for the 92 series valves, click here.

TECHNICAL DATA

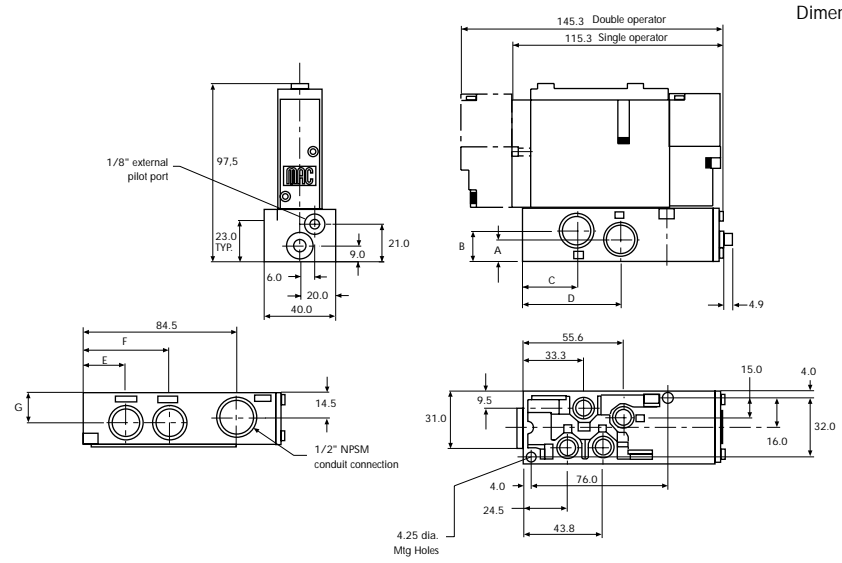
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1,3 to 8 bar	3 position : 2,3 to 8 bar	
	External pilot : vacuum to 8 bar	3 position : 2,3 to 8 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to +50°C		
Orifice :	6,2 mm		
Flow (at 6 bar, ΔP=1bar) :	1/8": 1000NI/min (Cv 1.0) – 1/4": 1100 NI/min (Cv 1.1) – 3/8": 1200 NI/min (Cv 1.2)		
Coil :	Epoxy encapsulated – class A – 100%ED (specify mod 0449)		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	IP65 (electrical connection)		
Power :	-Inrush 7,6 VA Holding : 4,8 VA = 1,8 to 12,7 W		
Response times :	24V~/5,4W	Energize : 8 ms	De-energize : 7 ms
	120V~/50Hz	Energize : 7-13 ms	De-energize : 12-20 ms

Options : • NPTF threads • Sandwich flow control: FC92B-AA (sgl. operator), FC92B-BA (dbl. operator)

Spare parts : • Pilot valve DM-DxxP-xxx • Valve blanking plate: M-92002
• Pressure seal between valve and base : 16543. • Mounting screws valve to base (X2) : 35050.

DIMENSIONS

Dimensions shown are metric (mm)



DIM.	A	B	C	D	E	F	G
G1/8"	12.5	18.0	31.0	54.0	23.5	46.5	18.0
G1/4"	12.5	18.0	31.0	54.0	23.5	46.5	18.0
G3/8"	12.0	17.0	30.0	54.0	23.5	47.5	17.0



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G1/4" - G3/8"	1200 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow; short and consistent response times.
7. Wiping effect eliminates sticking.
8. Long service life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
Valve less base		92B-ABA-000-DM-Dxxx-xxx	92B-BBA-000-DM-Dxxx-xxx	92B-EBA-000-DM-Dxxx-xxx	92B-FBA-000-DM-Dxxx-xxx	92B-GBA-000-DM-Dxxx-xxx
G1/4"	Internal	92B-ABA-EJG-DM-Dxxx-xxx	92B-BBA-EJG-DM-Dxxx-xxx	92B-EBA-EJG-DM-Dxxx-xxx	92B-FBA-EJG-DM-Dxxx-xxx	92B-GBA-EJG-DM-Dxxx-xxx
G3/8"		92B-ABA-FJG-DM-Dxxx-xxx	92B-BBA-FJG-DM-Dxxx-xxx	92B-EBA-FJG-DM-Dxxx-xxx	92B-FBA-FJG-DM-Dxxx-xxx	92B-GBA-FJG-DM-Dxxx-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
Valve less base		92B-CBA-000-DM-Dxxx-xxx	92B-DBA-000-DM-Dxxx-xxx
G1/4"	Internal	92B-CBA-EJG-DM-Dxxx-xxx	92B-DBA-EJG-DM-Dxxx-xxx
G3/8"		92B-CBA-FJG-DM-Dxxx-xxx	92B-DBA-FJG-DM-Dxxx-xxx

SOLENOID OPERATOR >

DM-D xxx-xxx*

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

* Click here for other options available.
End plate kit required (port size 3/8"): M-92004-01-01P (internal pilot)
M-92004-02-01P (External pilot)

Inlet/exhaust Isolator disc: N-92018.
Other options available for the 92 series valves, click here.

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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

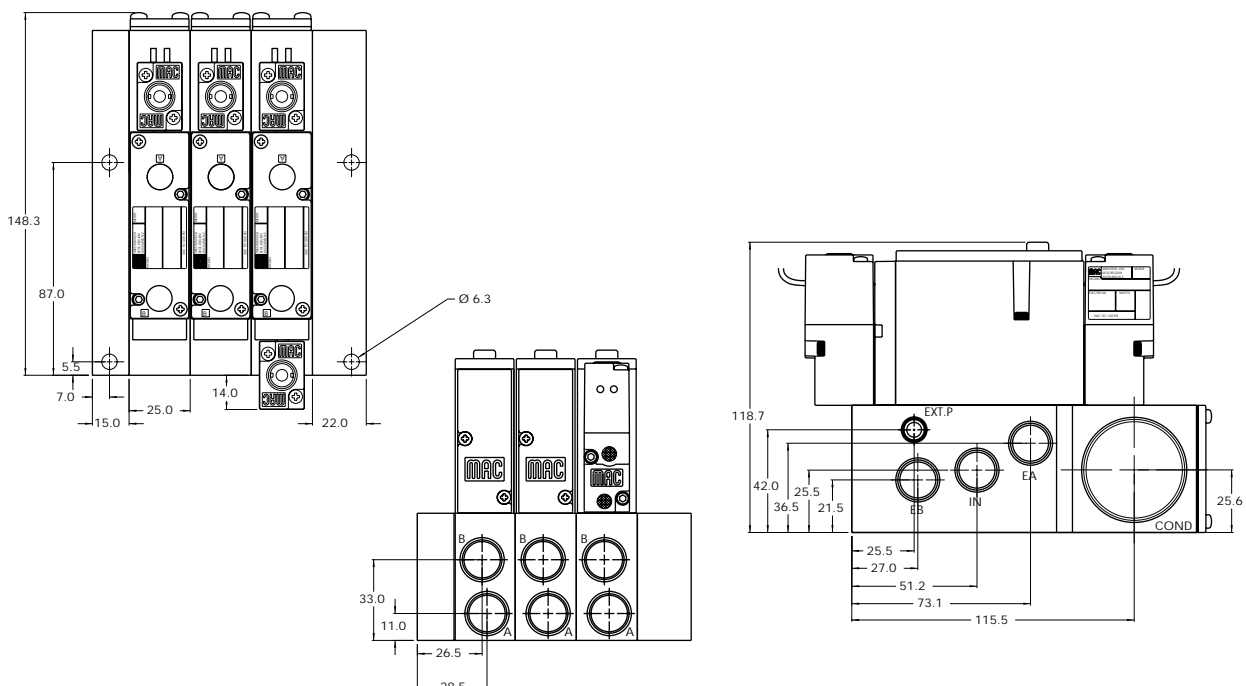
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1,3 to 8 bar	3 position : 2,3 to 8 bar	
	External pilot : vacuum to 8 bar	3 position : 2,3 to 8 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to +50°C		
Orifice :	6,2 mm		
Flow (at 6 bar, ΔP=1bar) :	1/4": 1100 NI/min (Cv1.1) – 3/8": 1200 NI/min (Cv 1.2)		
Coil :	Epoxy encapsulated – class A – 100%ED (specify mod 0449)		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	IP65 (electrical connection)		
Power :	~Inrush 7,6 VA Holding : 4,8 VA = 1,8 to 12,7 W		
Response times :	24V~/5,4W	Energize : 8 ms	De-energize : 7 ms
	120V~/50Hz	Energize : 7-13 ms	De-energize : 12-20 ms

Options : • NPTF threads • Sandwich flow controls: FC92B-CA

Spare parts : • Pilot valve: DM-Dxxx-xxx • Valve blanking plate: M-92002 • Pressure seal, valve to base 16543

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G1/4" - G3/8"	1200 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced poppet, high flow; short and consistent response times.
7. Wiping effect eliminates sticking.
8. Long service life.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre	5/3 Pressure centre
Valve less base		92B-AAA-000-DM-DxxP-xxx	92B-BAA-000-DM-DxxP-xxx	92B-EAA-000-DM-DxxP-xxx	92B-FAA-000-DM-DxxP-xxx	92B-GAA-000-DM-DxxP-xxx
G1/4"	Internal	92B-AAA-EJA-DM-DxxP-xxx	92B-BAA-EJA-DM-DxxP-xxx	92B-EAA-EJA-DM-DxxP-xxx	92B-FAA-EJA-DM-DxxP-xxx	92B-GAA-EJA-DM-DxxP-xxx
G3/8"		92B-AAA-FJA-DM-DxxP-xxx	92B-BAA-FJA-DM-DxxP-xxx	92B-EAA-FJA-DM-DxxP-xxx	92B-FAA-FJA-DM-DxxP-xxx	92B-GAA-FJA-DM-DxxP-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator
Valve less base		92B-CAA-000-DM-DxxP-xxx	92B-DAA-000-DM-DxxP-xxx
G1/4"	Internal	92B-CAA-EJA-DM-DxxP-xxx	92B-DAA-EJA-DM-DxxP-xxx
G3/8"		92B-CAA-FJA-DM-DxxP-xxx	92B-DAA-FJA-DM-DxxP-xxx

SOLENOID OPERATOR ➤

DM-D **XX** P-**XXX***

Above models are shown with side ports and no lights.

XX	Voltage	X	Manual operator	XX	Electrical connection
JA	110 V~/50Hz	1	Non-locking	DM	Plug-in
JB	220 V~/50Hz	2	Locking	DN	Plug-in with diode
JC	24 V~/50Hz			DP	Plug-in with M.O.V.
FB	24 V~/1,8W			DG	Plug-in with diode & ground
DA	24 V~/5,4W			DJ	Plug-in with M.O.V. & ground
DF	24 V~/12,7W				

* Click here for other options available.

Note: Ground required for 30 Volts or higher.

End plate required (port size 3/8"): M-92004-01-01P (internal pilot)

M-92004-02-01P (external pilot)

Inlet / exhaust isolator disc: N-92018.

Other options available for the 92 series valves, click here.

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ISO 1
ISO 2
ISO 3

TECHNICAL DATA

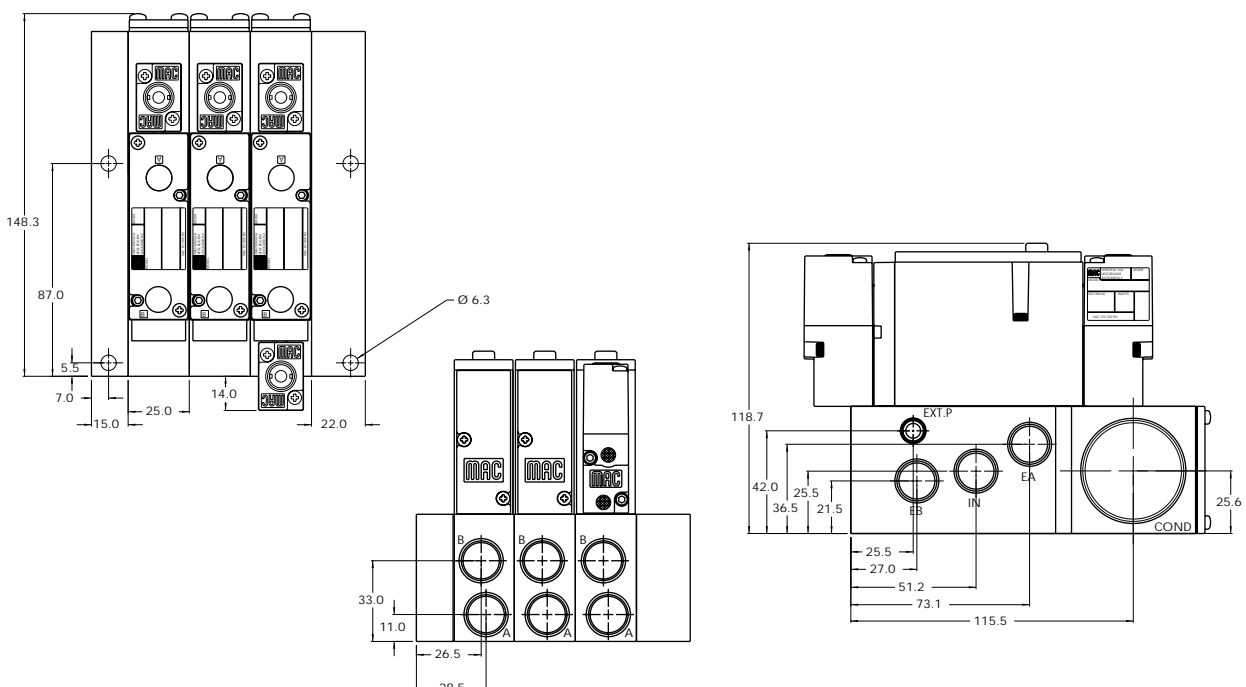
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1,3 to 8 bar	3 position : 2,3 to 8 bar	
	External pilot : vacuum to 8 bar	3 position : 2,3 to 8 bar	
Pilot pressure:	1,3 to 8 bar 3 positions 2,3 to 8 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to +50°C		
Orifice :	6,2 mm		
Flow (at 6 bar, ΔP=1bar) :	1/4": 1100 NI/min (Cv1.1) – 3/8": 1200 NI/min (Cv 1.2)		
Coil :	Epoxy encapsulated – class A – 100%ED (specify mod 0449)		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	IP65 (electrical connection)		
Power :	-Inrush 7,6 VA Holding : 4,8 VA = 1,8 to 12,7 W		
Response times :	24V~/5,4W	Energize : 8 ms	De-energize : 7 ms
	120V~/50Hz	Energize : 7-13 ms	De-energize : 12-20 ms

Options : • NPTF threads • Sandwich flow controls: FC92B-AA (sgl. operator), FC92B-BA (dbl. operator)

Spare parts : • Pilot valve: DM-DxxP-xxx • Valve blanking plate: M-92002 • Pressure seal, valve to base: 16543
• Mounting screws valve to base (x2): 35050

DIMENSIONS

Dimensions shown are metric (mm)



OPTIONS FOR NON PLUG-IN VALVES	34
Valve function	36
92B- H XX-XXX-XX-D xxx-xxx	
<ul style="list-style-type: none"> H for 3 position dual pressure, pressure centre* J for 3 position dual pressure, closed centre* K for 3 position dual pressure, open centre* L for single operator, single pressure with memory spring N for single operator, dual pressure with memory spring* 	32
Pilot exhaust	37
92B- XB X-XXX-XX-D xxx-xxx	38
<ul style="list-style-type: none"> B standard pilot exhaust D pilot exhaust to main valve exhaust** 	52
Port configuration :	67
Individual sub-base	44
92B-XXX- XA X-XX-D xxx-xxx	46
<ul style="list-style-type: none"> A side ports B bottom ports (1/8" only) C side & bottom ports (1/8" only) D side inlet & exhaust with bottom cylinder ports (1/8") 	
Manifold sub-base	42
92B-XXX- XJ X-XX-D xxx-xxx	47
<ul style="list-style-type: none"> J side ports K bottom ports 	
Pilot style :	48
92B-XXX-XXX- DM -D xxx-xxx	400
<ul style="list-style-type: none"> DM pilot exhaust muffled DP pilot exhaust piped (#10-32) DU pilot exhaust to main exhaust 	92
Base only :	93
92B-000-XXX (i.e. 92B-000-DAG) - Individual base	
92B-000-XXX (i.e. 92B-000-EJG) - Manifold base	

* Requires sandwich regulator.

** Must use DU pilot. Main valve exhaust cannot be restricted.



Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Valve function

92B-**HXX-XXX-XX-DxxP-xxx**

- H** for 3 position dual pressure, pressure centre*
- J** for 3 position dual pressure, closed centre*
- K** for 3 position dual pressure, open centre*
- L** for single operator, single pressure with memory spring
- N** for single operator, dual pressure with memory spring*

Pilot exhaust

92B-**XAX-XXX-XX-DxxP-xxx**

- A** standard pilot exhaust
- C** pilot exhaust to main valve exhaust**

Body electrical

92B-**XXA-XXX-XX-DxxP-xxx**

- A** no light
- B** light(s)
- F** suppression and blocking diode with light(s)
- H** M.O.V. with light(s)

Port configuration :

Individual sub-base

92B-**XXX-XAX-XX-DxxP-xxx**

- A** side ports
- B** bottom ports (1/8" only)
- C** side & bottom ports (1/8" only)
- D** side inlet & exhaust with bottom cylinder ports (1/8")

Manifold sub-base

92B-**XXX-XJX-XX-DxxP-xxx**

- J** side ports
- K** bottom ports

Base/manifold int./ext. pilot

92B-**XXX-XXA-XX-DxxP-xxx**

- A** internal pilot no light
- B** internal pilot single light
- C** internal pilot double light
- D** external pilot no light
- E** external pilot single light
- F** external pilot double light

Pilot style :

92B-**XXX-XXX-DM-DxxP-xxx**

- DM** pilot exhaust muffled
- DP** pilot exhaust piped (#10-32)
- DU** pilot exhaust to main exhaust

Lead Wire Lengths : (manifold sub-base only)

92B-**XXX-XXX-DM-DxxP-xxx**

- P** option - 30 cm leads
- 1** option - 45 cm leads
- 2** option - 60 cm leads
- 3** option - 90 cm leads
- 4** option - 120 cm leads
- 5** option - 180 cm leads

Base only :

92B-000-XXX (i.e. 92B-000-DAA) - Individual base
(Note: bases are wired for double solenoid valves)

92B-000-XXX (i.e. 92B-000-EJA) - Manifold base

* Requires sandwich regulator.

** Must use DU pilot. Main valve exhaust cannot be restricted.

Individual mounting

Inline	Sub-base non "plug-in"	Sub-base "plug-in"
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Series

Manifold mounting

Sub-base non "plug-in"	Sub-base "plug-in"
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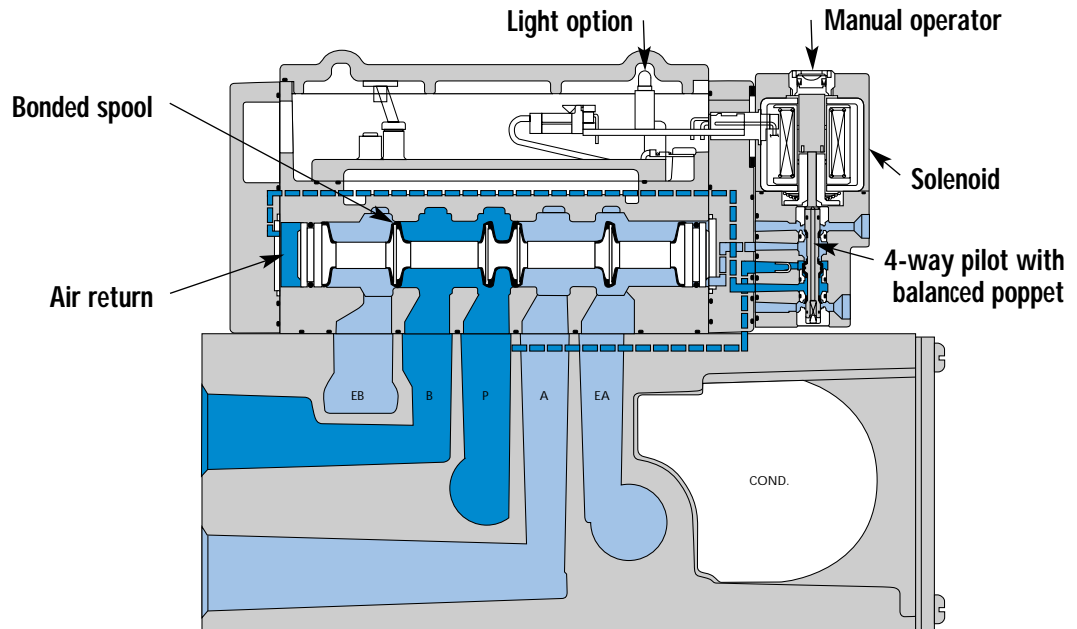
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ISO 1

ISO 2

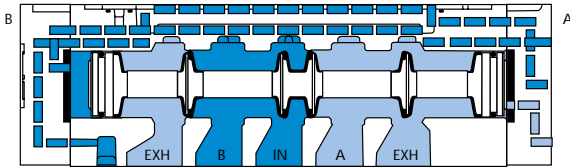
ISO 3



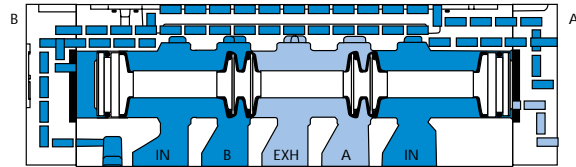
SERIES FEATURES

- Patented MACSOLENOID® for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Optional memory spring.
- Plug-in design of valves and bases for ease of maintenance.
- 2 position or 3 position valve configurations.

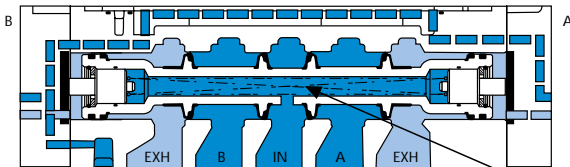
SPOOL CONFIGURATIONS



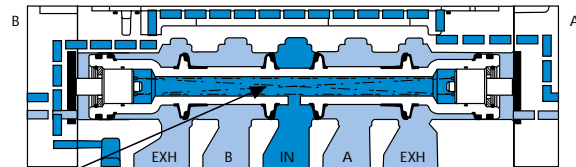
2 POSITION SINGLE PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED



2 POSITION DUAL PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED

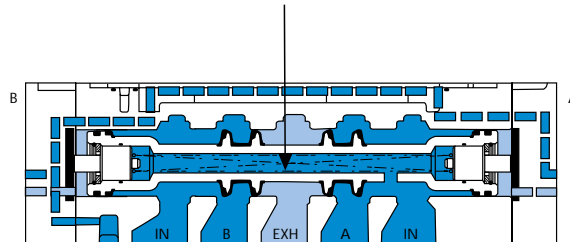


3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER

SPRING CENTERING

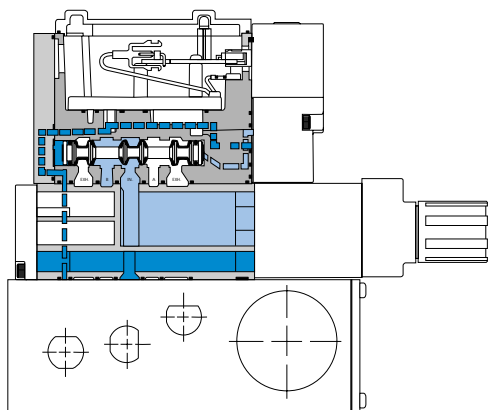


3 POSITION SINGLE PRESSURE, PRESSURE CENTER

REGULATOR CONFIGURATIONS

SINGLE REGULATOR - SINGLE PRESSURE

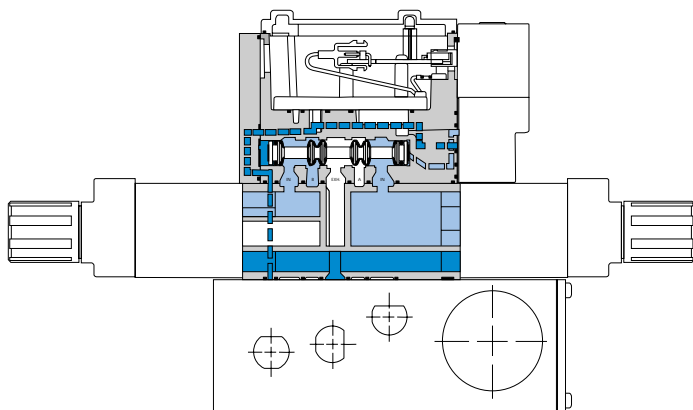
Pressure supplied to the individual or manifold base passes through the regulator. Regulated pressure is supplied to the pressure path of the valve.



MANIFOLD WITH REGULATOR - SINGLE PRESSURE

DUAL REGULATOR - DUAL PRESSURE

Pressure supplied from each regulator is divided in the block. Regulated pressure from "A" regulator supplies cylinder port "A". Regulated pressure from "B" regulator supplies cylinder port "B". Dual pressure regulators require dual pressure spool in valve.



MANIFOLD WITH REGULATOR - DUAL PRESSURE

Note: For both single and dual pressure, air supply to the pilot system is never regulated.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G3/8" - G1/2"	3800 NI/min	Inline	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Air only return. Optional memory spring is also available.
4. Optional low wattage DC solenoid down to 1 watt.
5. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
G3/8"	Internal	93A-AJO-E0J-DM-Dxxx-xxx	93A-BJO-E0J-DM-Dxxx-xxx	93A-EJO-E0J-DM-Dxxx-xxx	93A-FJO-E0J-DM-Dxxx-xxx
G1/2"	Internal	93A-AJO-F0J-DM-Dxxx-xxx	93A-BJO-F0J-DM-Dxxx-xxx	93A-EJO-F0J-DM-Dxxx-xxx	93A-FJO-F0J-DM-Dxxx-xxx
G3/8"	External	93A-AJO-E0K-DM-Dxxx-xxx	93A-BJO-E0K-DM-Dxxx-xxx	93A-EJO-E0K-DM-Dxxx-xxx	93A-FJO-E0K-DM-Dxxx-xxx
G1/2"	External	93A-AJO-F0K-DM-Dxxx-xxx	93A-BJO-F0K-DM-Dxxx-xxx	93A-EJO-F0K-DM-Dxxx-xxx	93A-FJO-F0K-DM-Dxxx-xxx

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
G3/8"	Internal	93A-CJO-E0J-DM-Dxxx-xxx	93A-DJO-E0J-DM-Dxxx-xxx	93A-HJO-E0J-DM-Dxxx-xxx
G1/2"	Internal	93A-CJO-F0J-DM-Dxxx-xxx	93A-DJO-F0J-DM-Dxxx-xxx	93A-HJO-F0J-DM-Dxxx-xxx
G3/8"	External	93A-CJO-E0K-DM-Dxxx-xxx	93A-DJO-E0K-DM-Dxxx-xxx	93A-HJO-E0K-DM-Dxxx-xxx
G1/2"	External	93A-CJO-F0K-DM-Dxxx-xxx	93A-DJO-F0K-DM-Dxxx-xxx	93A-HJO-F0K-DM-Dxxx-xxx

SOLENOID OPERATOR >

DM-D XXX-XXX*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm (Flying leads)	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V= /1,8W					JD	Rectangular connector with light
DA	24 V= /5,4W					BA	Flying leads
DF	24 V= /12,7W						

* Click here for other options available.

OPTIONS

Pilot exhaust : 93A-XJX-XXX-DM-Dxxx-xxx

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

Other options available for the 93 series valves, click here.

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

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ISO 1

ISO 2

ISO 3

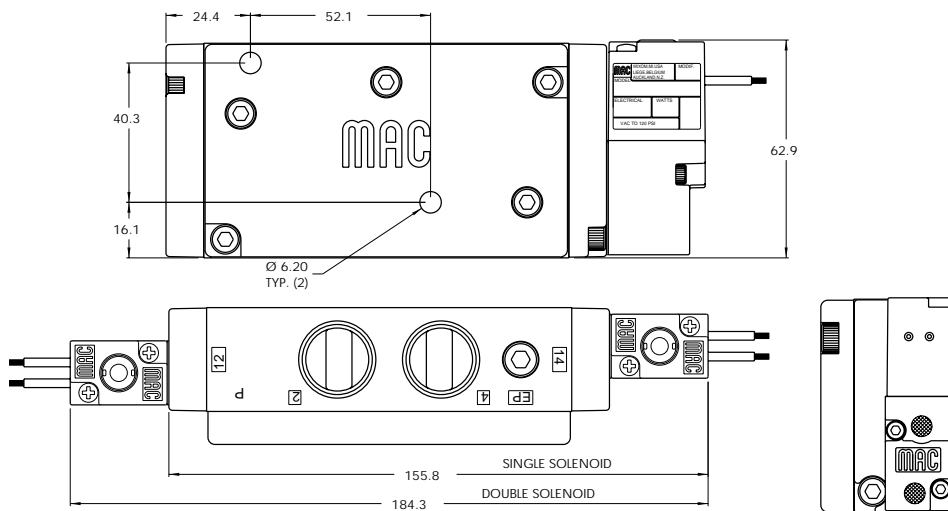
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot: 1,3 to 10 bar External Pilot: 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 +50°C
Orifice :	11,7 mm
Flow (at 6 bar, ΔP=1bar) :	3800 NI/min (Cv 3,8)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 1.8 to 12.7 W
Response times : (with 4 W coil)	Energize :13 ms De-energize : 10 ms

Option : • NPTF thread

DIMENSIONS

Dimensions shown are metric (mm)



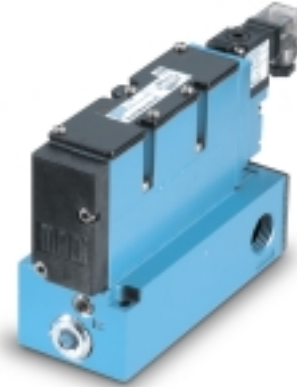


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/4" - G3/8" - G1/2"	3400 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Air only return. Optional memory spring is also available.
4. Optional low wattage DC solenoid down to 1 watt.
5. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.



HOW TO ORDER

SINGLE PRESSURE MODELS (1/4" MODELS ARE BOTTOM PORTED)

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Valve less base		93A-ABA-000-DM-Dxxx-xxx	93A-BBA-000-DM-Dxxx-xxx	93A-EBA-000-DM-Dxxx-xxx	93A-FBA-000-DM-Dxxx-xxx
G1/4"	Internal	93A-ABA-DBG-DM-Dxxx-xxx	93A-BBA-DBG-DM-Dxxx-xxx	93A-EBA-DBG-DM-Dxxx-xxx	93A-FBA-DBG-DM-Dxxx-xxx
G3/8"		93A-ABA-EAG-DM-Dxxx-xxx	93A-BBA-EAG-DM-Dxxx-xxx	93A-EBA-EAG-DM-Dxxx-xxx	93A-FBA-EAG-DM-Dxxx-xxx
G1/2"		93A-ABA-FAG-DM-Dxxx-xxx	93A-BBA-FAG-DM-Dxxx-xxx	93A-EBA-FAG-DM-Dxxx-xxx	93A-FBA-FAG-DM-Dxxx-xxx
G1/4"		External	93A-ABA-DBH-DM-Dxxx-xxx	93A-BBA-DBH-DM-Dxxx-xxx	93A-EBA-DBH-DM-Dxxx-xxx
G3/8"	93A-ABA-EAH-DM-Dxxx-xxx		93A-BBA-EAH-DM-Dxxx-xxx	93A-EBA-EAH-DM-Dxxx-xxx	93A-FBA-EAH-DM-Dxxx-xxx
G1/2"	93A-ABA-FAH-DM-Dxxx-xxx		93A-BBA-FAH-DM-Dxxx-xxx	93A-EBA-FAH-DM-Dxxx-xxx	93A-FBA-FAH-DM-Dxxx-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR, SEE „REGULATORS“ SECTION (1/4" MODELS ARE BOTTOM PORTED))

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Valve less base		93A-CBA-000-DM-Dxxx-xxx	93A-DBA-000-DM-Dxxx-xxx	93A-HBA-000-DM-Dxxx-xxx
G1/4"	Internal	93A-CBA-DBG-DM-Dxxx-xxx	93A-DBA-DBG-DM-Dxxx-xxx	93A-HBA-DBG-DM-Dxxx-xxx
G3/8"		93A-CBA-EAG-DM-Dxxx-xxx	93A-DBA-EAG-DM-Dxxx-xxx	93A-HBA-EAG-DM-Dxxx-xxx
G1/2"		93A-CBA-FAG-DM-Dxxx-xxx	93A-DBA-FAG-DM-Dxxx-xxx	93A-HBA-FAG-DM-Dxxx-xxx
G1/4"		External	93A-CBA-DBH-DM-Dxxx-xxx	93A-DBA-DBH-DM-Dxxx-xxx
G3/8"	93A-CBA-EAH-DM-Dxxx-xxx		93A-DBA-EAH-DM-Dxxx-xxx	93A-HBA-EAH-DM-Dxxx-xxx
G1/2"	93A-CBA-FAH-DM-Dxxx-xxx		93A-DBA-FAH-DM-Dxxx-xxx	93A-HBA-FAH-DM-Dxxx-xxx

SOLENOID OPERATOR ➤

DM-D xxx-xxx*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	BM	Flying leads
JB	220 V-/50Hz	B	60 cm	2	Locking	BN	Flying leads with diode
JC	24 V-/50Hz	J	Connector			BP	Flying leads with M.O.V.
FB	24 V-/1,8W					BG	Flying leads with ground
DA	24 V-/5,4W					JB	Rectangular connector
DF	24 V-/12,7W					JD	Rectangular connector with light

* Click here for other options available.

Other options available for the 93 series valves, click here.

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ISO 1

ISO 2

ISO 3



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting	Series
5/2, 5/3	G1/4" - G3/8" - G1/2"	3400 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Air only return. Optional memory spring is also available.
4. Optional low wattage DC solenoid down to 1 watt.
5. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.

HOW TO ORDER

SINGLE PRESSURE MODELS (1/4" MODELS ARE BOTTOM PORTED)

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Valve less base		93A-AAA-000-DM-DxxP-xxx	93A-BAA-000-DM-DxxP-xxx	93A-EAA-000-DM-DxxP-xxx	93A-FAA-000-DM-DxxP-xxx
G1/4"	Internal	93A-AAA-DBA-DM-DxxP-xxx	93A-BAA-DBA-DM-DxxP-xxx	93A-EAA-DBA-DM-DxxP-xxx	93A-FAA-DBA-DM-DxxP-xxx
G3/8"		93A-AAA-EAA-DM-DxxP-xxx	93A-BAA-EAA-DM-DxxP-xxx	93A-EAA-EAA-DM-DxxP-xxx	93A-FAA-EAA-DM-DxxP-xxx
G1/2"		93A-AAA-FAA-DM-DxxP-xxx	93A-BAA-FAA-DM-DxxP-xxx	93A-EAA-FAA-DM-DxxP-xxx	93A-FAA-FAA-DM-DxxP-xxx
G1/4"		93A-AAA-DBD-DM-DxxP-xxx	93A-BAA-DBD-DM-DxxP-xxx	93A-EAA-DBD-DM-DxxP-xxx	93A-FAA-DBD-DM-DxxP-xxx
G3/8"	External	93A-AAA-EAD-DM-DxxP-xxx	93A-BAA-EAD-DM-DxxP-xxx	93A-EAA-EAD-DM-DxxP-xxx	93A-FAA-EAD-DM-DxxP-xxx
G1/2"		93A-AAA-FAD-DM-DxxP-xxx	93A-BAA-FAD-DM-DxxP-xxx	93A-EAA-FAD-DM-DxxP-xxx	93A-FAA-FAD-DM-DxxP-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR, SEE „REGULATORS“ SECTION (1/4" MODELS ARE BOTTOM PORTED))

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure Centre
Valve less base		93A-CAA-000-DM-DxxP-xxx	93A-DAA-000-DM-DxxP-xxx	93A-HAA-000-DM-DxxP-xxx
G1/4"	Internal	93A-CAA-DBA-DM-DxxP-xxx	93A-DAA-DBA-DM-DxxP-xxx	93A-HAA-DBA-DM-DxxP-xxx
G3/8"		93A-CAA-EAA-DM-DxxP-xxx	93A-DAA-EAA-DM-DxxP-xxx	93A-HAA-EAA-DM-DxxP-xxx
G1/2"		93A-CAA-FAA-DM-DxxP-xxx	93A-DAA-FAA-DM-DxxP-xxx	93A-HAA-FAA-DM-DxxP-xxx
G1/4"		93A-CAA-DBD-DM-DxxP-xxx	93A-DAA-DBD-DM-DxxP-xxx	93A-HAA-DBD-DM-DxxP-xxx
G3/8"	External	93A-CAA-EAD-DM-DxxP-xxx	93A-DAA-EAD-DM-DxxP-xxx	93A-HAA-EAD-DM-DxxP-xxx
G1/2"		93A-CAA-FAD-DM-DxxP-xxx	93A-DAA-FAD-DM-DxxP-xxx	93A-HAA-FAD-DM-DxxP-xxx

SOLENOID OPERATOR ➤

DM-D XX P-XXX*

Above models are shown without light.

XX	Voltage	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	1	Non-locking	DM	Plug-in
JB	220 V-/50Hz	2	Locking	DN	Plug-in with diode
JC	24 V-/50Hz			DP	Plug-in with M.O.V.
FB	24 V= /1,8W			DG	Plug-in with ground
DA	24 V= /5,4W				
DF	24 V= /12,7W				

* Click here for other options available.

Note: Ground required for 30 Volts or higher.

Other options available for the 93 series valves, click here.

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

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ISO 1

ISO 2

ISO 3





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G3/8" - G1/2"	3800 NI/min	Sub-base non "plug-in"	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Air only return. Optional memory spring is also available.
4. Optional low wattage DC solenoid down to 1 watt.
5. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Valve less base		93A-ABA-000-DM-Dxxx-xxx	93A-BBA-000-DM-Dxxx-xxx	93A-EBA-000-DM-Dxxx-xxx	93A-FBA-000-DM-Dxxx-xxx
G3/8"	Internal	93A-ABA-EJG-DM-Dxxx-xxx	93A-BBA-EJG-DM-Dxxx-xxx	93A-EBA-EJG-DM-Dxxx-xxx	93A-FBA-EJG-DM-Dxxx-xxx
G1/2"		93A-ABA-FJG-DM-Dxxx-xxx	93A-BBA-FJG-DM-Dxxx-xxx	93A-EBA-FJG-DM-Dxxx-xxx	93A-FBA-FJG-DM-Dxxx-xxx
G3/8"	External	93A-ABA-EJH-DM-Dxxx-xxx	93A-BBA-EJH-DM-Dxxx-xxx	93A-EBA-EJH-DM-Dxxx-xxx	93A-FBA-EJH-DM-Dxxx-xxx
G1/2"		93A-ABA-FJH-DM-Dxxx-xxx	93A-BBA-FJH-DM-Dxxx-xxx	93A-EBA-FJH-DM-Dxxx-xxx	93A-FBA-FJH-DM-Dxxx-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR, SEE „REGULATORS“ SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Valve less base		93A-CBA-000-DM-Dxxx-xxx	93A-DBA-000-DM-Dxxx-xxx	93A-HBA-000-DM-Dxxx-xxx
G3/8"	Internal	93A-CBA-EJG-DM-Dxxx-xxx	93A-DBA-EJG-DM-Dxxx-xxx	93A-HBA-EJG-DM-Dxxx-xxx
G1/2"		93A-CBA-FJG-DM-Dxxx-xxx	93A-DBA-FJG-DM-Dxxx-xxx	93A-HBA-FJG-DM-Dxxx-xxx
G3/8"	External	93A-CBA-EJH-DM-Dxxx-xxx	93A-DBA-EJH-DM-Dxxx-xxx	93A-HBA-EJH-DM-Dxxx-xxx
G1/2"		93A-CBA-FJH-DM-Dxxx-xxx	93A-DBA-FJH-DM-Dxxx-xxx	93A-HBA-FJH-DM-Dxxx-xxx

SOLENOID OPERATOR >

DM-D xxx-xxx*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm (Flying leads)	1	Non-locking	BM	Flying leads
JB	220 V-/50Hz	B	60 cm (Flying leads)	2	Locking	BN	Flying leads with diode
JC	24 V-/50Hz	J	Connector			KA	Square connector
FB	24 V-/1,8W					KD	Square connector with light
DA	24 V-/5,4W						
DF	24 V-/12,7W						

* Click here for other options available.

End plate kit required (1/2" ports): M-93001-01-01P internal pilot.

M-93001-02-01P external pilot.

Other options available for the 93 series valves, click here.

TECHNICAL DATA

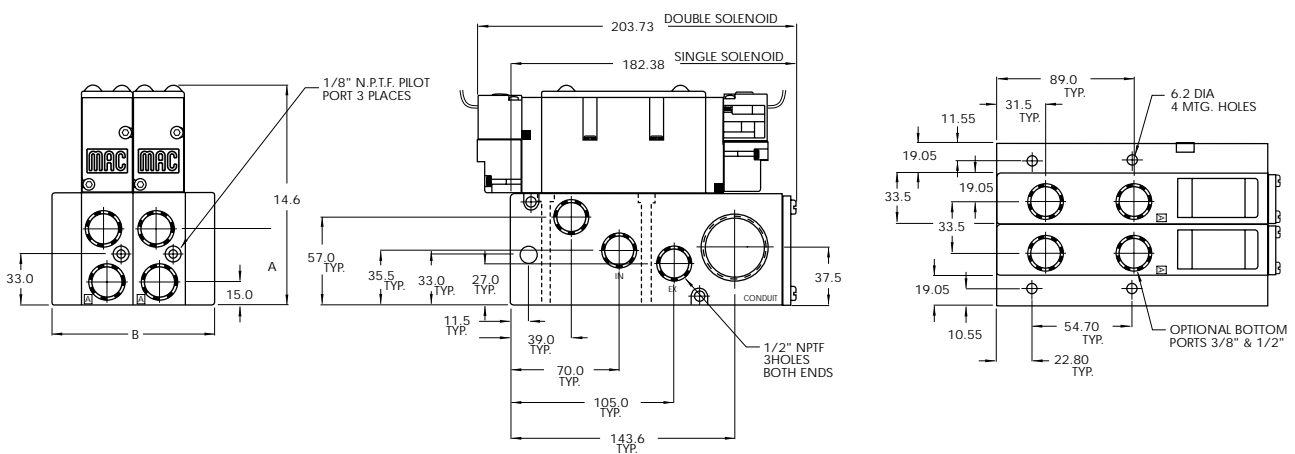
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot: 1,3 to 10 bar External Pilot: Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	11,7 mm
Flow (at 6 bar, ΔP=1bar) :	3/8": 3400 NI/min (Cv 3,4) – 1/2": 3800 NI/min (Cv 3.8)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 1 to 12.7 W
Response times : (with 4 W coil)	Energize :13 ms De-energize : 10 ms

- Options :
- NPTF thread • Sandwich regulator (see ,regulators' section)
 - Sandwich flow controls FC93A-BA (screwdriver slot adjustment), FC93A-BB (locking knob adjustment)

- Spare parts :
- Pilot valve: DM-Dxxx-xxx • Valve to base pressure seal: 16622
 - Pilot valve pressure seal: 16542 • Mounting screws valve to base (x4): 35249
 - Inlet/exh. Isolator disc: N-93008 • Valve blanking plate: M-93002

DIMENSIONS

Dimensions shown are metric (mm)



#	1	2	3	4	5	6	7	8	9	10
B	71.6	105.1	138.6	172.1	205.6	239.1	272.6	306.1	339.6	373.1

DIM.	A
G3/8"	47.66
G1/2"	49.32



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting	Series
5/2, 5/3	G3/8" - G1/2"	3800 NI/min	Sub-base "plug-in"	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. Air only return. Optional memory spring is also available.
4. Optional low wattage DC solenoid down to 1 watt.
5. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Valve less base		93A-AAA-000-DM-DxxP-xxx	93A-BAA-000-DM-DxxP-xxx	93A-EAA-000-DM-DxxP-xxx	93A-FAA-000-DM-DxxP-xxx
G3/8"	Internal	93A-AAA-EJA-DM-DxxP-xxx	93A-BAA-EJA-DM-DxxP-xxx	93A-EAA-EJA-DM-DxxP-xxx	93A-FAA-EJA-DM-DxxP-xxx
G1/2"		93A-AAA-FJA-DM-DxxP-xxx	93A-BAA-FJA-DM-DxxP-xxx	93A-EAA-FJA-DM-DxxP-xxx	93A-FAA-FJA-DM-DxxP-xxx
G3/8"	External	93A-AAA-EJD-DM-DxxP-xxx	93A-BAA-EJD-DM-DxxP-xxx	93A-EAA-EJD-DM-DxxP-xxx	93A-FAA-EJD-DM-DxxP-xxx
G1/2"		93A-AAA-FJD-DM-DxxP-xxx	93A-BAA-FJD-DM-DxxP-xxx	93A-EAA-FJD-DM-DxxP-xxx	93A-FAA-FJD-DM-DxxP-xxx

DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR, SEE „REGULATORS“ SECTION)

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure Centre
Valve less base		93A-CAA-000-DM-DxxP-xxx	93A-DAA-000-DM-DxxP-xxx	93A-HAA-000-DM-DxxP-xxx
G3/8"	Internal	93A-CAA-EJA-DM-DxxP-xxx	93A-DAA-EJA-DM-DxxP-xxx	93A-HAA-EJA-DM-DxxP-xxx
G1/2"		93A-CAA-FJA-DM-DxxP-xxx	93A-DAA-FJA-DM-DxxP-xxx	93A-HAA-FJA-DM-DxxP-xxx
G3/8"	External	93A-CAA-EJD-DM-DxxP-xxx	93A-DAA-EJD-DM-DxxP-xxx	93A-HAA-EJD-DM-DxxP-xxx
G1/2"		93A-CAA-FJD-DM-DxxP-xxx	93A-DAA-FJD-DM-DxxP-xxx	93A-HAA-FJD-DM-DxxP-xxx

SOLENOID OPERATOR >

DM-D **XX** P-**XXX***

Above model numbers are shown with side ports without light.

XX	Voltage	X	Manual operator	XX	Electrical connection
JA	110 V~/50Hz (2,9W)	1	Non-locking	DM	Plug-in
JB	220 V~/50Hz (2,9W)	2	Locking	DN	Plug-in with diode
JC	24 V~/50Hz (3,7W)			DP	Plug-in with M.O.V.
FB	24 V~/1,8W			DG	Plug-in with ground
DA	24 V~/5,4W				
DF	24 V~/12,7W				

* Click here for other options available.

End plate required (1/2" ports): M-93001-01-01P Internal pilot.
M-93001-02-01P External pilot.

Other options available for the 93 series valves, click here.

TECHNICAL DATA

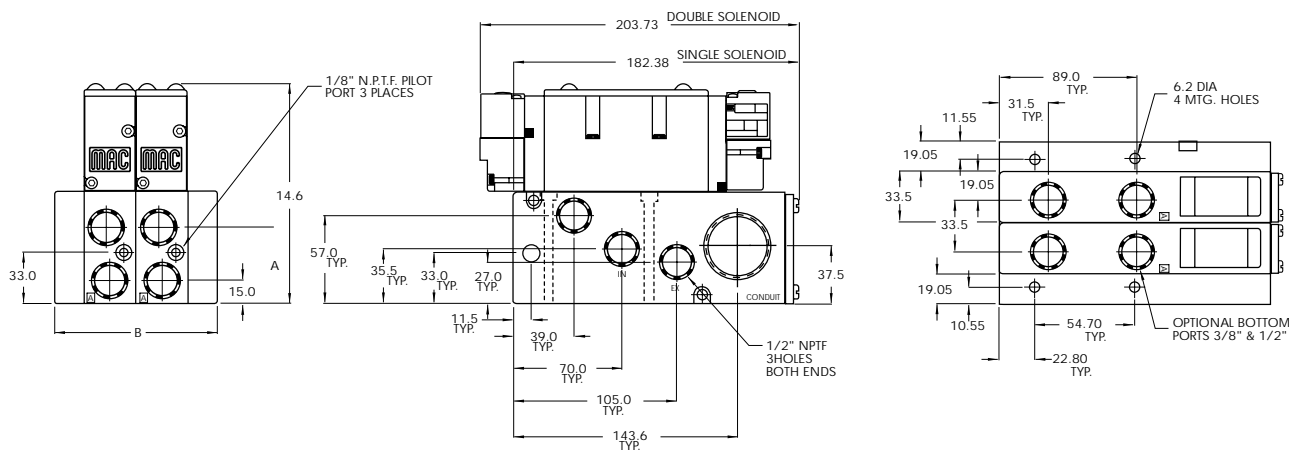
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot: 1,3 to 10 bar External Pilot: Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	11,7 mm
Flow (at 6 bar, ΔP=1bar) :	3/8": 3400 NI/min (Cv 3,4) – 1/2": 3800 NI/min (Cv 3.8)
Coil :	Epoxy encapsulated – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 1 to 12.7 W
Response times : (with 4 W coil)	Energize :13 ms De-energize : 10 ms

- Options :
- NPTF thread • Sandwich regulator (see ,regulators' section)
 - Sandwich flow controls FC93A-AA (screwdriver slot adjustment), FC93A-AB (locking knob adjustment)

- Spare parts :
- Pilot valve: DM-DxxP-xxx • Valve to base pressure seal: 16622
 - Pilot valve pressure seal: 16542 • Mounting screws valve to base (x4): 35249
 - Inlet/exh. Isolator disc: N-93008 • Valve blanking plate: M-93002

DIMENSIONS

Dimensions shown are metric (mm)



#	1	2	3	4	5	6	7	8	9	10	DIM.	A
B	71.6	105.1	138.6	172.1	205.6	239.1	272.6	306.1	339.6	373.1	G3/8"	47.66
											G1/2"	49.32

OPTIONS FOR NON PLUG-IN VALVES	34
Valve function	36
93A-LXX-XXX-XX-Dxxx-xxx	
<ul style="list-style-type: none"> L for single operator, single pressure with memory spring N for single operator, dual pressure with memory spring R for single operator universal spool (ext. pilot only) S for double operator universal spool (ext. pilot only) 	32
	37
	38
Pilot exhaust	52
93A- XB X-XXX-XX-Dxxx-xxx	67
<ul style="list-style-type: none"> B standard pilot exhaust D pilot exhaust to main valve exhaust* 	44
	46
Port configuration :	
Individual sub-base	
93A-XXX- XA X-XX-Dxxx-xxx	
<ul style="list-style-type: none"> A side ports (3/8" & 1/2" only) B bottom ports (1/4" & 3/8" only) C side & bottom ports (1/4" & 3/8" only) D side inlet & exhaust with bottom cylinder ports (1/4" & 3/8" only) 	
	42
Manifold sub-base	
93A-XXX- XJ X-XX-Dxxx-xxx	
<ul style="list-style-type: none"> J side ports K bottom ports 	47
	48
Pilot style :	
93A-XXX-XXX- DM -Dxxx-xxx	
<ul style="list-style-type: none"> DM pilot exhaust muffled DP pilot exhaust piped (#10-32) DU pilot exhaust to main exhaust 	400
	92
Base only :	
93A-000-XXX (i.e. 93A-000-DBG) - Individual base	
93A-000-XXX (i.e. 93A-000-EJG) - Manifold base	

* Must use DU pilot. Main valve exhaust cannot be restricted.



Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Valve function

93A-LXX-XXX-XX-DxxP-xxx

- L** for single operator, single pressure with memory spring
- N** for single operator, dual pressure with memory spring
- R** for single operator universal spool (ext. pilot only)
- S** for double operator universal spool (ext. pilot only)

Pilot exhaust

93A-XAX-XXX-XX-DxxP-xxx

- A** standard pilot exhaust
- C** pilot exhaust to main valve exhaust*

Body electrical

92B-XXA-XXX-XX-DxxP-xxx

- A** no light
- B** light(s)

Port configuration :

Individual sub-base

93A-XXX-XAX-XX-DxxP-xxx

- A** side ports (3/8" & 1/2" only)
- B** bottom ports (1/4" & 3/8" only)
- C** side & bottom ports (1/4" & 3/8" only)
- D** side inlet & exhaust with bottom cylinder ports (1/4" & 3/8" only)

Manifold sub-base

93A-XXX-XJX-XX-DxxP-xxx

- J** side ports
- K** bottom ports

Base/manifold int./ext. pilot

93A-XXX-XXA-XX-DxxP-xxx

- A** internal pilot no light
- B** internal pilot single light
- C** internal pilot double light
- D** external pilot no light
- E** external pilot single light
- F** external pilot double light

Pilot style :

93A-XXX-XXX-DM-DxxP-xxx

- DM** pilot exhaust muffled
- DP** pilot exhaust piped (#10-32)
- DU** pilot exhaust to main exhaust

Base only :

93A-000-XXX (i.e. 93A-000-DBA) - Individual base
(Note: bases are wired for double solenoid valves)

93A-000-XXX (i.e. 93A-000-DJA) - Manifold base

* Must use DU pilot. Main valve exhaust cannot be restricted.

Individual mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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Series

34

Manifold mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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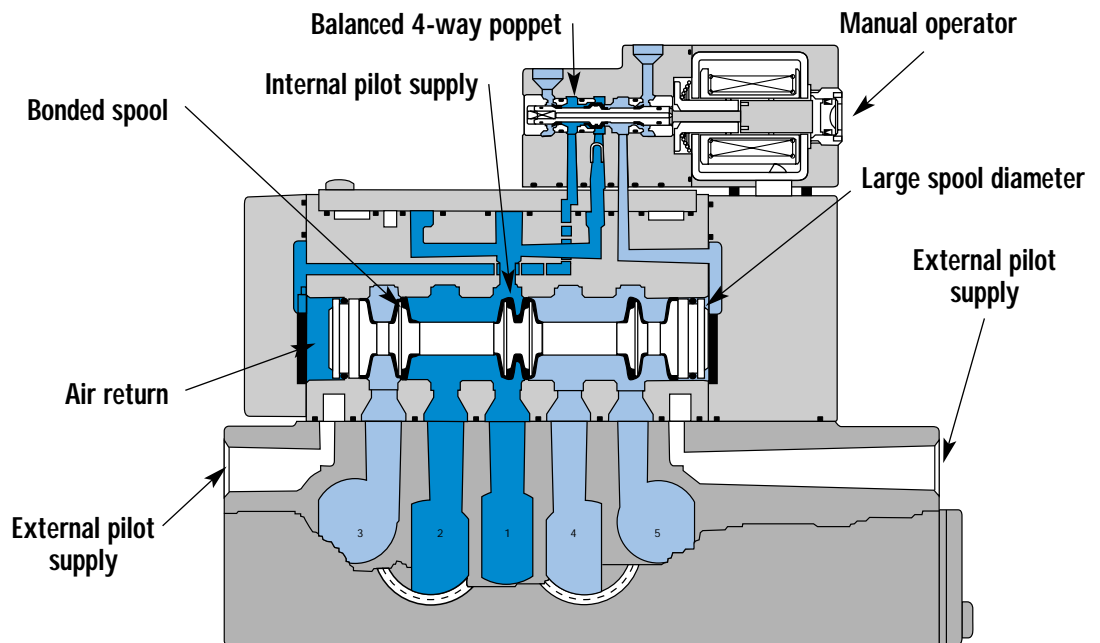
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SERIES FEATURES

- Plug-in (5599/2) and non plug-in (5599/1) models.
- 2-position, single or double operator. (Solenoid or Remote Air)
- 3-position, double solenoid, open center, closed center, and pressure center.
- Extended or recessed manual operators.
- Single pressure and dual pressure.
- Individual base or add-a-unit manifold base.
- Plug-in, sandwich, single and dual pressure regulators for both individual and manifold valves.

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G1/4" - G3/8"	1800 NI/min	Valve only - No base non "plug-in" Conform to ISO 5599/1	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-B1A-AAAA-DM-Dxxx-xxx	MV-B1A-ABAA-DM-Dxxx-xxx	MV-B1A-AEAA-DM-Dxxx-xxx	MV-B1A-AFAA-DM-Dxxx-xxx
External "12" end	MV-B1A-AAAB-DM-Dxxx-xxx	MV-B1A-ABAB-DM-Dxxx-xxx	MV-B1A-AEAB-DM-Dxxx-xxx	MV-B1A-AFAB-DM-Dxxx-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-B1A-ACAD-DM-Dxxx-xxx	MV-B1A-ADAD-DM-Dxxx-xxx	MV-B1A-AGAD-DM-Dxxx-xxx
Internal From port #5	MV-B1A-ACAE-DM-Dxxx-xxx	MV-B1A-ADAE-DM-Dxxx-xxx	MV-B1A-AGAE-DM-Dxxx-xxx
External From "12" end	MV-B1A-ACAB-DM-Dxxx-xxx	MV-B1A-ADAB-DM-Dxxx-xxx	MV-B1A-AGAB-DM-Dxxx-xxx

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SOLENOID OPERATOR ▶

DM-D **XXX-XXX***

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V= /1,8W					JD	Rectangular connector with light
DA	24 V= /5,4W					BA	Flying leads
DF	24 V= /12,7W						

* Click here for other options available.
Note: ISO series, valve and base are ordered separately, click here for base code.

OPTIONS

Valve function :

MV-B1A-**A**XXX-XX-Dxxx-xxx

- J** for single operator universal spool (ext. pilot only)
- K** for double operator universal spool (ext. pilot only)

Pilot style :

MV-B1A-AXXX-**DM**-Dxxx-xxx

- DM** Pilot exhaust muffled
- DP** Pilot exhaust piped (#10-32)

Spool return :

MV-B1A-AX**A**X-XX-Dxxx-xxx

- A** Standard return
- B** Memory spring return
- C** Standard return with light
- D** Memory spring return with light

ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Pilot pressure :	Single / double operator : 1,3 to 10 bar 3 positions : 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
Orifice :	7.8 mm
Flow (at 6 bar, ΔP=1bar) :	3/8": 1800 NI/min (Cv 1.8) – 1/4": 1600 NI/min (Cv 1.6)
Coil :	Epoxy encapsulated – Class A wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 1 to 12.7 W
Response times : (with 5,4 W coil)	Energize :11.3 ms De-energize : 7.8 ms

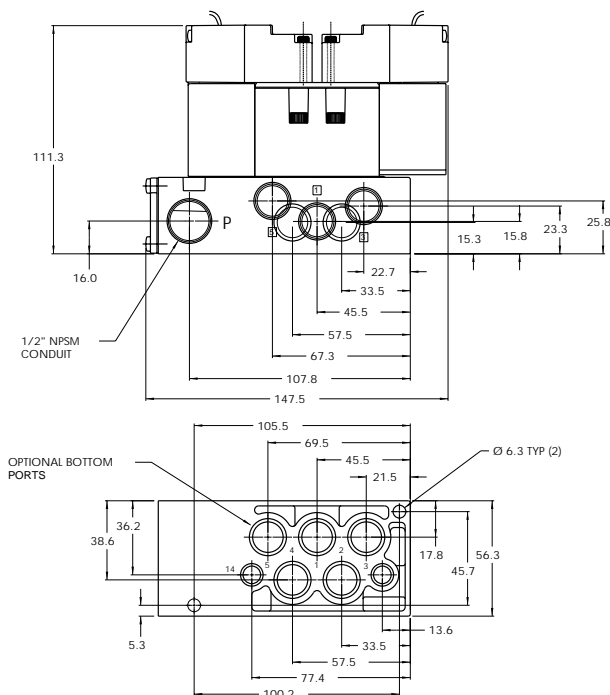
- Options :
- Sandwich flow controls: FCP1A-BA (screwdriver slot adjustment)
FCP1A-BB (locking knob adjustment)
 - Sandwich regulator, see 'Regulators' section

- Spare parts :
- Pilot valve: DMB-Dxxx-xxx • Valve to base pressure seal: 16661

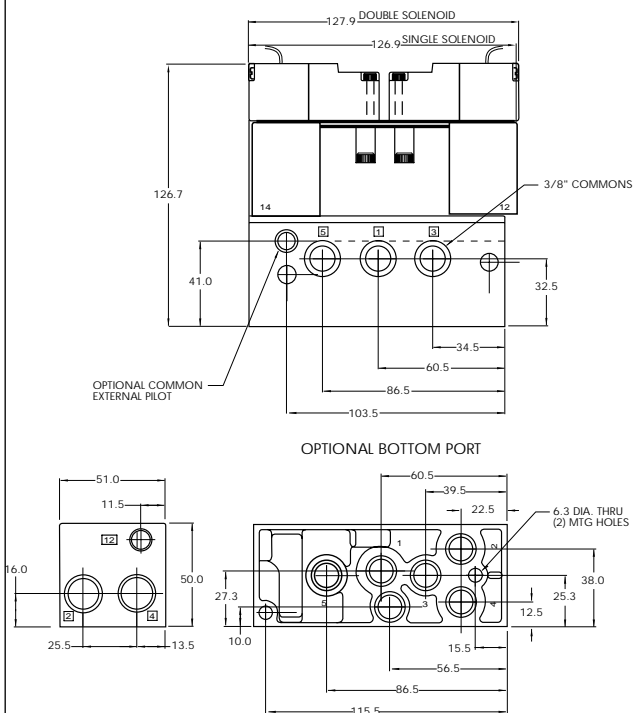
DIMENSIONS

Dimensions shown are metric (mm)

Individual base



Manifold base





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G1/4" - G3/8"	1800 NI/min	Valve only - No base "plug-in" Conform to ISO 5599/2	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-P1A-AAAA-DM-DxxP-xxx	MV-P1A-ABAA-DM-DxxP-xxx	MV-P1A-AEAA-DM-DxxP-xxx	MV-P1A-AFAA-DM-DxxP-xxx
External "12" end	MV-P1A-AAAB-DM-DxxP-xxx	MV-P1A-ABAB-DM-DxxP-xxx	MV-P1A-AEAB-DM-DxxP-xxx	MV-P1A-AFAB-DM-DxxP-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-P1A-ACAD-DM-DxxP-xxx	MV-P1A-ADAD-DM-DxxP-xxx	MV-P1A-AGAD-DM-DxxP-xxx
Internal From port #5	MV-P1A-ACAE-DM-DxxP-xxx	MV-P1A-ADAE-DM-DxxP-xxx	MV-P1A-AGAE-DM-DxxP-xxx
External From "12" end	MV-P1A-ACAB-DM-DxxP-xxx	MV-P1A-ADAB-DM-DxxP-xxx	MV-P1A-AGAB-DM-DxxP-xxx

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SOLENOID OPERATOR ▶

DM-D **XX** P-**XXX***

XX Voltage	X Manual operator	XX Electrical connection
JA 110 V~/50Hz	1 Non-locking	DM Plug-in
JB 220 V~/50Hz	2 Locking	DN Plug-in with diode
JC 24 V~/50Hz		DP Plug-in with M.O.V.
FB 24 V~/1,8W		DG Plug-in with ground
DA 24 V~/5,4W		
DF 24 V~/12,7W		

* Click here for other options available.
 Note: - ISO series, valve and base are ordered separately, click here for base codes.
 - Ground wire required for 30 volts or higher.

ISO 1
ISO 2
ISO 3

OPTIONS

Valve function :

MV-P1A-**AXXX-XX-DxxP-xxx**
J for single operator universal spool (ext. pilot only)
K for double operator universal spool (ext. pilot only)

Pilot style :

MV-P1A-**AXXX-DM-DxxP-xxx**
DM Pilot exhaust muffled
DP Pilot exhaust piped (#10-32)

Spool return :

MV-P1A-**AXAX-XX-DxxP-xxx**
A Standard return
B Memory spring return
D Standard return with light
E Memory spring return with light

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

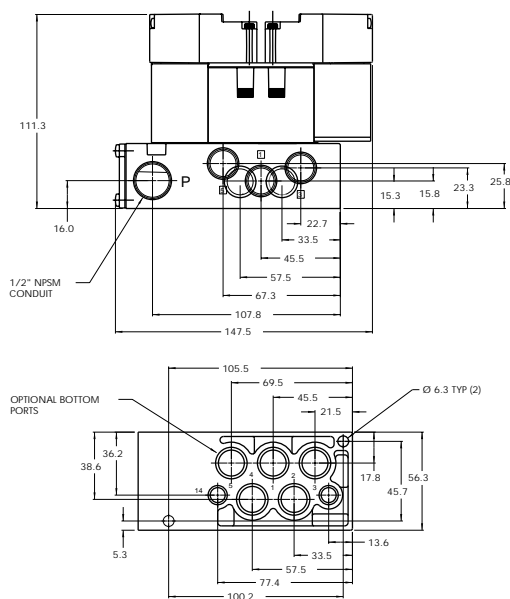
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Pilot pressure :	Single / double operator : 1,3 to 10 bar 3 positions : 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
Orifice :	7.8 mm
Flow (at 6 bar, ΔP=1bar) :	3/8": 1800 NI/min (Cv 1.8) – 1/4": 1600 NI/min (Cv 1.6)
Coil :	Epoxy encapsulated – Class A wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 1 to 12.7 W
Response times : (with 5,4 W coil)	Energize : 10 ms De-energize : 9 ms

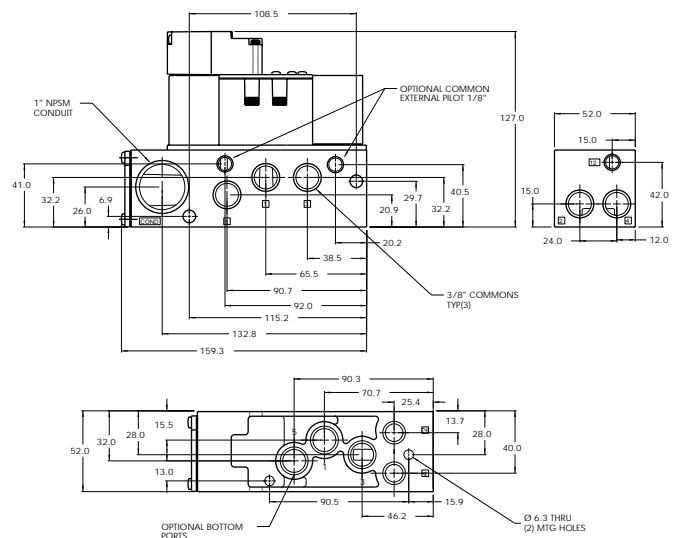
- Options :
- Sandwich flow controls: FCP1A-AA (screwdriver slot adjustment)
FCP1A-AB (locking knob adjustment)
 - Sandwich regulator, see 'Regulators' section
- Spare parts :
- Pilot valve: DMB-DxxP-xxx • Valve to base pressure seal: 16661

DIMENSIONS

Individual base



Dimensions shown are metric (mm)
Manifold base



Individual mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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Series

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Manifold mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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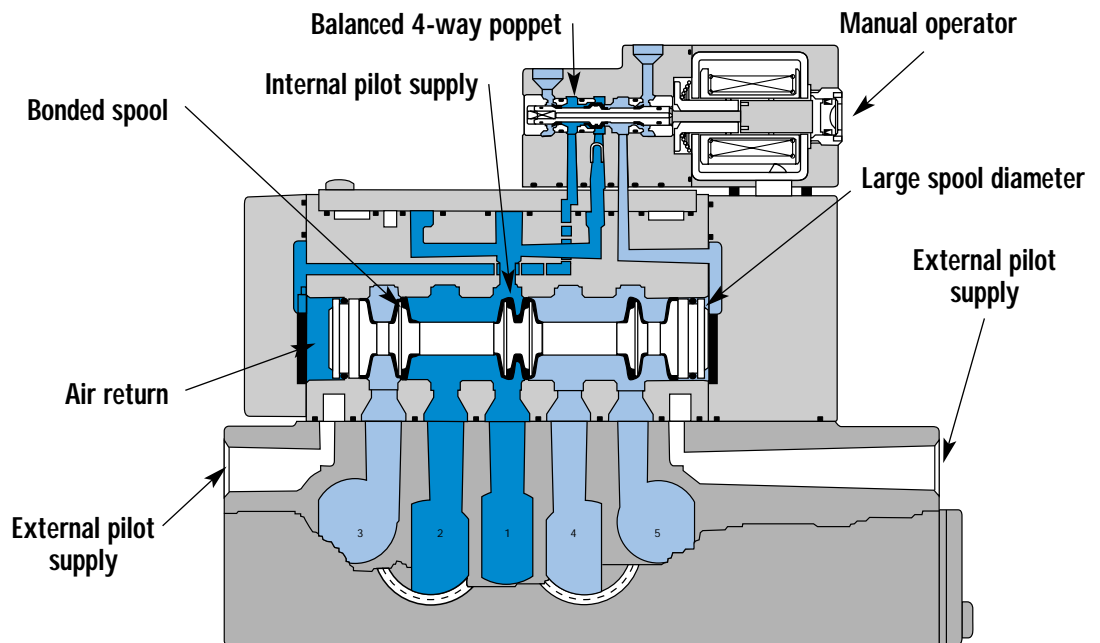
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- Plug-in (5599/2) and non plug-in (5599/1) models.
- 2-position, single or double operator. (Solenoid or Remote Air)
- 3-position, double solenoid, open center, closed center, and pressure center.
- Extended or recessed manual operators.
- Single pressure and dual pressure.
- Individual base or add-a-unit manifold base.
- Plug-in, sandwich, single and dual pressure regulators for both individual and manifold valves.

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G3/8" - G1/2"	3000 NI/minn	Valve only - No base non "plug-in" Conform to ISO 5599/1	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-B2A-AAAA-DM-Dxxx-xxx	MV-B2A-ABAA-DM-Dxxx-xxx	MV-B2A-AEAA-DM-Dxxx-xxx	MV-B2A-AFAA-DM-Dxxx-xxx
External "12" end	MV-B2A-AAAB-DM-Dxxx-xxx	MV-B2A-ABAB-DM-Dxxx-xxx	MV-B2A-AEAB-DM-Dxxx-xxx	MV-B2A-AFAB-DM-Dxxx-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-B2A-ACAD-DM-Dxxx-xxx	MV-B2A-ADAD-DM-Dxxx-xxx	MV-B2A-AGAD-DM-Dxxx-xxx
Internal From port #5	MV-B2A-ACAE-DM-Dxxx-xxx	MV-B2A-ADAE-DM-Dxxx-xxx	MV-B2A-AGAE-DM-Dxxx-xxx
External From "12" end	MV-B2A-ACAB-DM-Dxxx-xxx	MV-B2A-ADAB-DM-Dxxx-xxx	MV-B2A-AGAB-DM-Dxxx-xxx

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SOLENOID OPERATOR ▶

DM-D **XXX-XXX***

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V= /1,8W					JD	Rectangular connector with light
DA	24 V= /5,4W					BA	Flying leads
DF	24 V= /12,7W						

* Click here for other options available.
Note: ISO series, valve and base are ordered separately, click here for base code.

OPTIONS

Valve function :

MV-B2A-**A**XXX-XX-Dxxx-xxx

- J** for single operator universal spool (ext. pilot only)
- K** for double operator universal spool (ext. pilot only)

Pilot style :

MV-B2A-AXXX-**DM-D**xxx-xxx

- DM** Pilot exhaust muffled
- DP** Pilot exhaust piped (#10-32)

Spool return :

MV-B2A-AX**A**X-XX-Dxxx-xxx

- A** Standard return
- B** Memory spring return

ISO 1
ISO 2
ISO 3

TECHNICAL DATA

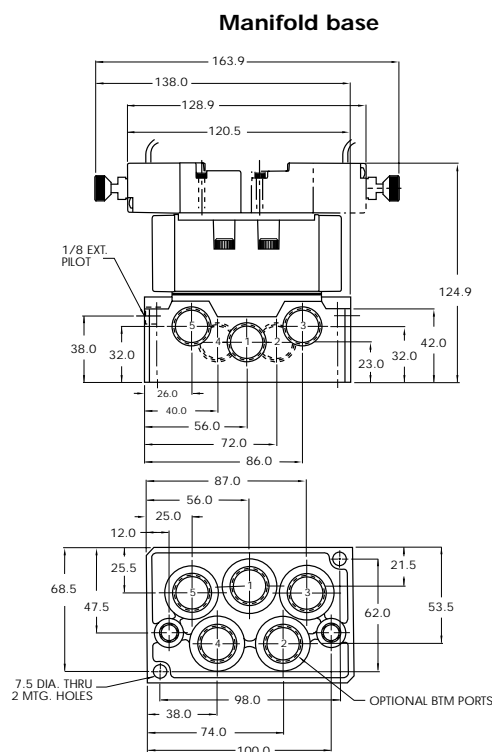
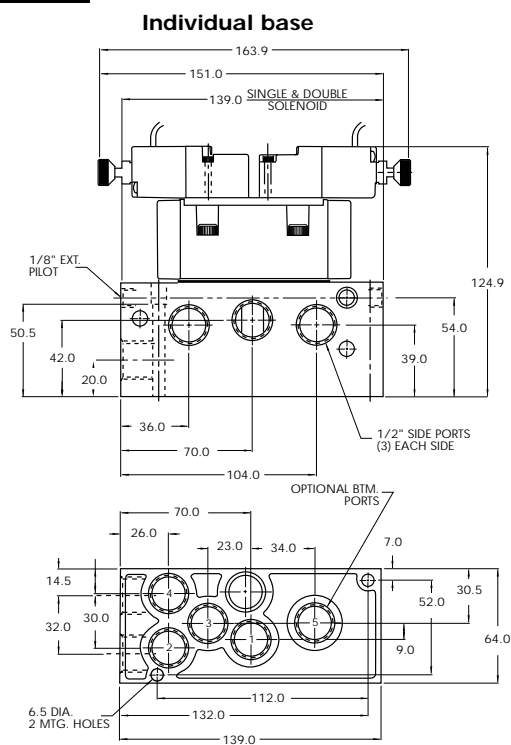
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 1,3 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator and 3 positions : 1,3 to 10 bar double operator : 2 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	10.5 mm
Flow (at 6 bar, ΔP=1bar) :	G3/8": 2800 NI/min (Cv 2.8) - G1/2": 3000 NI/min (Cv 3,0)
Coil :	Epoxy encapsulated – class A wires – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 12.7 to 1,0 W
Response times :	24 V~/5,4w Energize : 10 ms De-energize : 9.6 ms 110V~/50Hz Energize : 6-15 ms De-energize : 10-17 ms

- Options :
- Sandwich flow controls: FCP2A-BA (screwdriver slot adjustment)
FCP2A-BB (locking knob adjustment)
 - Sandwich regulator, see 'Regulators' section

- Spare parts :
- Pilot valve: DMB-Dxxx-xxx
 - Valve to base pressure seal: 16576
 - Valve mounting screws (x4): 35413

DIMENSIONS

Dimensions shown are metric (mm)



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

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G3/8" - G1/2"	3000 NI/min	Valve only - No base "plug-in" Conform to ISO 5599/2	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-P2A-AAAA-DM-DxxP-xxx	MV-P2A-ABAA-DM-DxxP-xxx	MV-P2A-AEAA-DM-DxxP-xxx	MV-P2A-AFAA-DM-DxxP-xxx
External "12" end	MV-P2A-AAAB-DM-DxxP-xxx	MV-P2A-ABAB-DM-DxxP-xxx	MV-P2A-AEAB-DM-DxxP-xxx	MV-P2A-AFAB-DM-DxxP-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-P2A-ACAD-DM-DxxP-xxx	MV-P2A-ADAD-DM-DxxP-xxx	MV-P2A-AGAD-DM-DxxP-xxx
Internal From port #5	MV-P2A-ACAE-DM-DxxP-xxx	MV-P2A-ADAE-DM-DxxP-xxx	MV-P2A-AGAE-DM-DxxP-xxx
External From "12" end	MV-P2A-ACAB-DM-DxxP-xxx	MV-P2A-ADAB-DM-DxxP-xxx	MV-P2A-AGAB-DM-DxxP-xxx

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SOLENOID OPERATOR ▶

DM-D **XX** P-**XXX***

XX Voltage	X Manual operator	XX Electrical connection
JA 110 V~/50Hz	1 Non-locking	DM Plug-in
JB 220 V~/50Hz	2 Locking	DN Plug-in with diode
JC 24 V~/50Hz		DP Plug-in with M.O.V.
FB 24 V~/1,8W		DG Plug-in with ground
DA 24 V~/5,4W		
DF 24 V~/12,7W		

* Click here for other options available.

Note: - ISO series, valve and base are ordered separately, click here for base codes.
- Ground wire required for 30 volts or higher.

ISO 1
ISO 2
ISO 3

OPTIONS

Valve function :

MV-P2A-**A**XXX-**XX**-DxxP-xxx

- J** for single operator universal spool (ext. pilot only)
- K** for double operator universal spool (ext. pilot only)

Pilot style :

MV-P2A-**A**XXX-**DM**-DxxP-xxx

- DM** Pilot exhaust muffled
- DP** Pilot exhaust piped (#10-32)

Spool return :

MV-P2A-**A**XX-**XX**-DxxP-xxx

- A** Standard return
- B** Memory spring return
- D** Standard return with light
- E** Memory spring return with light

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

Individual mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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Series

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Manifold mounting

Valve only - No base non "plug-in" Conform to ISO 5599/1	Valve only - No base "plug-in" Conform to ISO 5599/2
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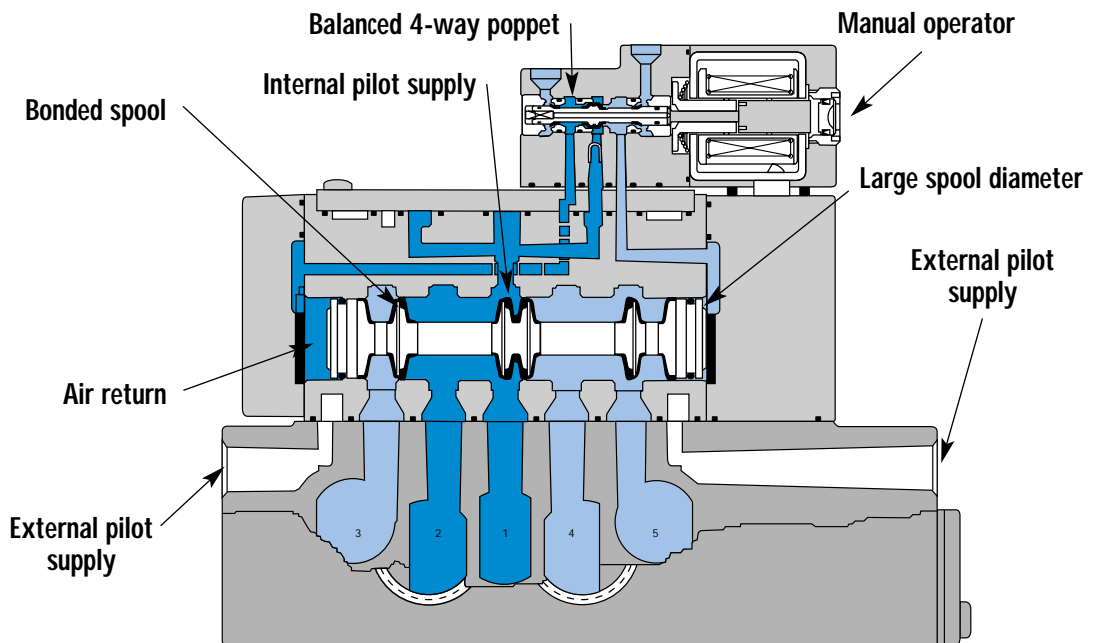
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ISO 1

ISO 2

ISO 3



SERIES FEATURES

- Plug-in (5599/2) and non plug-in (5599/1) models.
- 2-position, single or double operator. (Solenoid or Remote Air)
- 3-position, double solenoid, open center, closed center, and pressure center.
- Extended or recessed manual operators.
- Single pressure and dual pressure.
- Individual base or add-a-unit manifold base.
- Plug-in, sandwich, single and dual pressure regulators for both individual and manifold valves.

Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G1/2" - G3/4"	6100 NI/min	Valve only - No base "non plug-in" Conform to ISO 5599/1	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



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HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-B3A-AAAA-DM-Dxxx-xxx	MV-B3A-ABAA-DM-Dxxx-xxx	MV-B3A-AEAA-DM-Dxxx-xxx	MV-B3A-AFAA-DM-Dxxx-xxx
External "12" end	MV-B3A-AAAB-DM-Dxxx-xxx	MV-B3A-ABAB-DM-Dxxx-xxx	MV-B3A-AEAB-DM-Dxxx-xxx	MV-B3A-AFAB-DM-Dxxx-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-B3A-ACAD-DM-Dxxx-xxx	MV-B3A-ADAD-DM-Dxxx-xxx	MV-B3A-AGAD-DM-Dxxx-xxx
Internal From port #5	MV-B3A-ACAE-DM-Dxxx-xxx	MV-B3A-ADAE-DM-Dxxx-xxx	MV-B3A-AGAE-DM-Dxxx-xxx
External From "12" end	MV-B3A-ACAB-DM-Dxxx-xxx	MV-B3A-ADAB-DM-Dxxx-xxx	MV-B3A-AGAB-DM-Dxxx-xxx

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SOLENOID OPERATOR ▶

DM-D **XXX-XXX***

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
JA	110 V-/50Hz	A	45 cm	1	Non-locking	KA	Square connector
JB	220 V-/50Hz	B	60 cm	2	Locking	KD	Square connector with light
JC	24 V-/50Hz	J	Connector			JB	Rectangular connector
FB	24 V= /1,8W					JD	Rectangular connector with light
DA	24 V= /5,4W					BA	Flying leads
DF	24 V= /12,7W						

* Click here for other options available.
Note: ISO series, valve and base are ordered separately, click here for base code.

OPTIONS

Valve function :

MV-B3A-**A**XXX-XX-Dxxx-xxx

- J** for single operator universal spool (ext. pilot only)
- K** for double operator universal spool (ext. pilot only)

Pilot style :

MV-B3A-AXXX-**DM**-Dxxx-xxx

- DM** Pilot exhaust muffled
- DP** Pilot exhaust piped (#10-32)

Spool return :

MV-B3A-AX**A**X-XX-Dxxx-xxx

- A** Standard return
- B** Memory spring return

ISO 1
ISO 2
ISO 3

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 1,3 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator and 3 positions : 1,3 to 10 bar double operator : 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
Orifice :	14.9 mm
Flow (at 6 bar, ΔP=1bar) :	G1/2": 5400 NI/min (Cv 5,4) – G3/4": 6100 NI/min (Cv 6,1)
Coil :	Epoxy encapsulated – class A wires – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 12.7 to 1,0 W
Response times : (5,4 W coil)	Energize : 16,2 ms De-energize : 13,6 ms

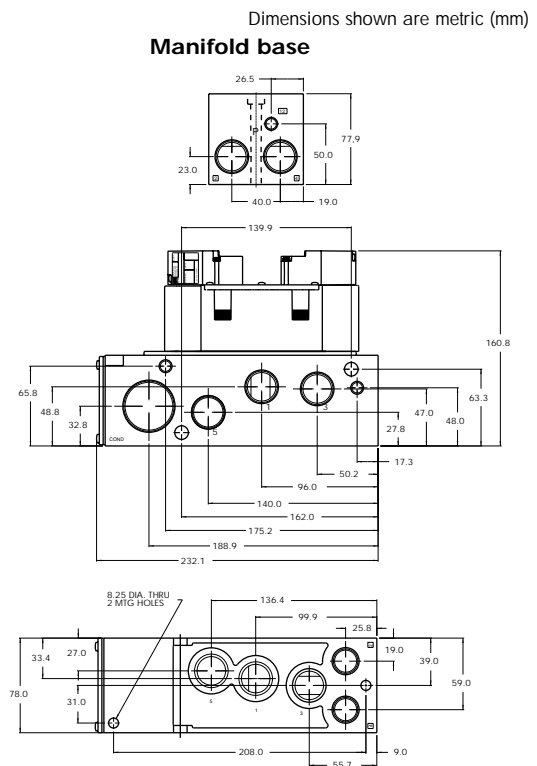
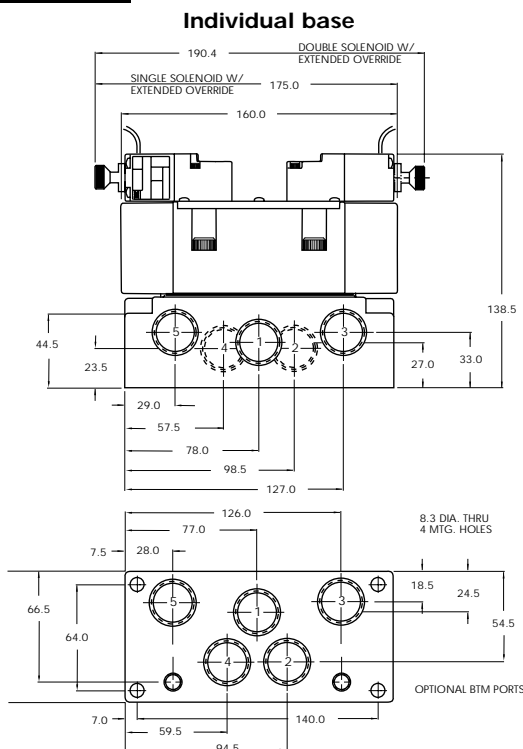
Options :

- Sandwich regulator, see 'Regulators' section

Spare parts :

- Pilot valve: DMB-Dxxx-xxx
- Valve to base pressure seal: 16614
- Valve mounting screws (x4): 35451

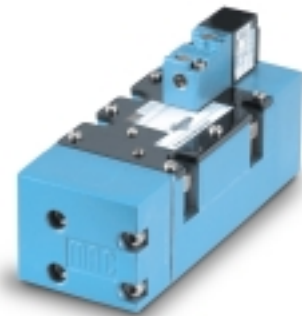
DIMENSIONS



Function	Port size	Flow (Max)	Individual/Manifold mounting	Series
5/2, 5/3	G1/2" - G3/4"	6100 NI/min	Valve only - No base "plug-in" Conform to ISO 5599/2	

OPERATIONAL BENEFITS

1. Unique patented Macsolenoid® for fastest possible response times and virtually burn-out proof AC solenoid operation.
2. Balanced poppet 4-way pilot valve provides maximum shifting forces, precise repeatability and consistent operation.
3. MAC spool and bore combination wipes away contamination, eliminates sticking and allows for use on non-lube service.
4. Large spool area for maximum shifting forces even at minimum operating pressure.
5. Very high flow in a compact package.
6. Plug-in design of valves, bases and regulators for modular assembly and ease of maintenance.
7. Internal or external pilot operation. Manifolds supplied with common external pilot.
8. Air only return. Optional memory spring is also available.
9. Optional low wattage DC solenoid down to 1.0 watt.



HOW TO ORDER

SINGLE PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
Internal	MV-P3A-AAAA-DM-DxxP-xxx	MV-P3A-ABAA-DM-DxxP-xxx	MV-P3A-AEAA-DM-DxxP-xxx	MV-P3A-AFAA-DM-DxxP-xxx
External "12" end	MV-P3A-AAAB-DM-DxxP-xxx	MV-P3A-ABAB-DM-DxxP-xxx	MV-P3A-AEAB-DM-DxxP-xxx	MV-P3A-AFAB-DM-DxxP-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/2 Pressure centre
Internal From port #3	MV-P3A-ACAD-DM-DxxP-xxx	MV-P3A-ADAD-DM-DxxP-xxx	MV-P3A-AGAD-DM-DxxP-xxx
Internal From port #5	MV-P3A-ACAE-DM-DxxP-xxx	MV-P3A-ADAE-DM-DxxP-xxx	MV-P3A-AGAE-DM-DxxP-xxx
External From "12" end	MV-P3A-ACAB-DM-DxxP-xxx	MV-P3A-ADAB-DM-DxxP-xxx	MV-P3A-AGAB-DM-DxxP-xxx

SOLENOID OPERATOR ▶

DM-D **XX** P-**XXX***

XX Voltage	X Manual operator	XX Electrical connection
JA 110 V~/50Hz	1 Non-locking	DM Plug-in
JB 220 V~/50Hz	2 Locking	DN Plug-in with diode
JC 24 V~/50Hz		DP Plug-in with M.O.V.
FB 24 V~/1,8W		DG Plug-in with ground
DA 24 V~/5,4W		
DF 24 V~/12,7W		

* Click here for other options available.

Note: - ISO series, valve and base are ordered separately, click here for base codes.
- Ground wire required for 30 volts or higher.

OPTIONS

Valve function :

MV-P3A-**A**XXX-**XX**-DxxP-xxx

- J** for single operator universal spool (ext. pilot only)
- K** for double operator universal spool (ext. pilot only)

Pilot style :

MV-P3A-**A**XXX-**DM**-DxxP-xxx

- DM** Pilot exhaust muffled
- DP** Pilot exhaust piped (#10-32)

Spool return :

MV-P3A-**A**XX-**XX**-DxxP-xxx

- A** Standard return
- B** Memory spring return
- D** Standard return with light
- E** Memory spring return with light

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

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ISO 1

ISO 2

ISO 3

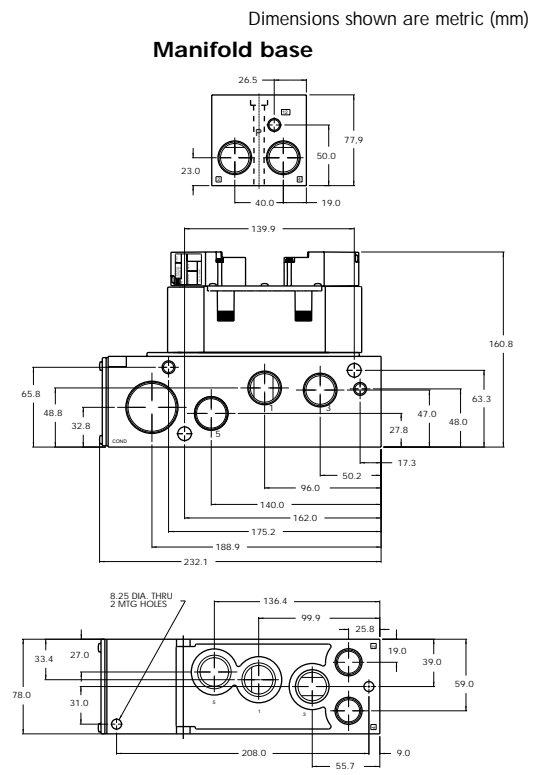
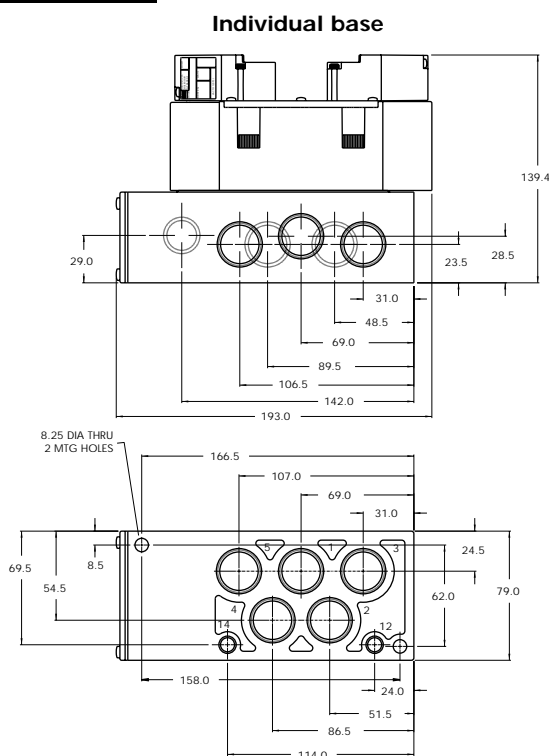
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 1,3 to 10 bar External pilot : vacuum to 10 bar
Pilot pressure :	Single operator and 3 positions : 1,3 to 10 bar double operator : 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
Orifice :	14.9 mm
Flow (at 6 bar, ΔP=1bar) :	G1/2": 5400 NI/min (Cv 5,4) – G3/4": 6100 NI/min (Cv 6,1)
Coil :	Epoxy encapsulated – class A wires – 100% ED (specify mod 0449)
Voltage range :	-15% to +10% of nominal voltage
Protection :	IP65 (electrical connection)
Power :	~ Inrush 7,6 VA Holding: 4,8 VA = 12.7 to 1,0 W
Response times :	Energize : 16,2 ms De-energize : 13,6 ms

Options : • Sandwich regulator, see ‚Regulators‘ section

Spare parts : • Pilot valve: DMB-DxxP-xxx • Valve to base pressure seal: 16614
• Valve mounting screws (x4): 35451

DIMENSIONS





Options



0 p t i o n s

Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ► **-DM- D XX X-X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Pilot operated valves 52, 67, 92, 93, 400, ISO1, ISO2, ISO3 Series

1. VOLTAGE		4. ELECTRICAL CONNECTION	
D-XX X-X XX	VOLTAGE	D-XX X-X XX	ELECTRICAL CONNECTION
DA	24V=/5,4W	BA*	Flying leads
DB	12V=/5,4W	BK*	BA with protection diode
DC	12V=/7,5W	BL*	BA with protection varistor
DD	24V=/7,3W	BM**	Flying leads (solenoid plug-in)
DE	12V=/12,7W	BN**	BM with protection diode
DF	24V=/12,7W	BP**	BM with protection varistor
DK	110V=/4,7W	BG**	BM with ground
DJ	28V=/5,2W	BH**	BM with protection diode & ground
DL	64V=/6W	BJ**	BM with protection varistor & ground
DM	36V=/5,3W	CA*	1/2" NPS conduit with flying leads
DN	6V=/6W	CM*	1/2" NPS metal conduit with flying leads
DR	90V=/6,6W	CN*	1/2" NPS metal conduit with flying leads & ground
DS	110V=/7,3W	JB	Rectangular connector
DT	75V=/5,6W	JD	Rectangular connector with light
DP	48V=/5,8W	JM	Rectangular connector, male only
FA	12V=/1,8W	KA	Square connector
FB	24V=/1,8W	KB	Square connector with protection diode
FE	12V=/2,4W	KC	Square connector with protection varistor
FF	24V=/2,4W	KD	Square connector with light
JA	120V~/60Hz, 110V~/50Hz (2,9W)	KE	Square connector with light and protection diode
JB	240V~/60Hz, 220V~/50Hz (2,9W)	KF	Square connector with light and protection varistor
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KG	Square connector with light & diode
JD	100V~/60Hz, 100V~/50Hz, 110V-60Hz (3,9W)	KJ	Square connector (male only)
JE	220V~/60Hz (3,4W)	KK	Square connector with protection diode (male only)
JF	240V~/50Hz (2,8W)	KL	Square connector with protection varistor (male only)
JG	200V~/60Hz, 200V~/50Hz (3,9W)	TA	Dual tabs with receptacles
		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
			* From Lead wire length options choose A through F
			** From Lead wire length options choose 0 through F
			Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.
2. WIRE LENGTH			
D-XX X-X XX	WIRE LENGTH		
0	No wires		
A	45 cm – 18"		
B	60 cm – 24"		
C	90 cm – 36"		
D	120 cm – 48"		
E	180 cm – 72"		
F	240 cm – 96"		
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		



0 p t i o n s

Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ► **G XX X-X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Solenoid valves 32, 34, 38, 42, 44, & 48 Series

1. VOLTAGE		4. ELECTRICAL CONNECTION	
G-XX X-X XX	VOLTAGE	G-XX X-X XX	ELECTRICAL CONNECTION
AA	120V~/2,5W Requires electrical connector with rectifier	BA	Flying leads
AC	24V~/4,0W Requires electrical connector with rectifier	BB	BA with ground wire
DA	24V~/1,0W Not available for 34 series	BC	BA with light
DC	24V~/1,8W	BD	BA with light and ground wire
DD	24V~/2,5W	BE	BA with suppression diode
DE	24V~/3,0W	BF	BA with suppression diode and ground wire
DF	24V~/4,0W	BG	BA with suppression diode and light
DG	12V~/1,0W Not available for the 34 series	BH	BA with suppression diode, light and ground wire
DJ	12V~/1,8W	BN	BA with suppression diode and blocking diode
DK	12V~/2,5W	BP	BA with suppression diode, blocking diode and ground wire
DM	12V~/3,0W	BR	BA with suppression diode, blocking diode and light
DN	12V~/4,0W	BS	BA with suppression diode, blocking diode, light and ground wire
DR	6V~/1,8W	KA	Mini connector
DS	6V~/3,0W	KB	KA with ground
EB	48V~/1,8W	KC	KA with rectifier and light
EC	48V~/3,0W	KD	KA with rectifier, light and ground
ED	120V~/2,5W	KE	KA with suppression diode
		KF	KA with suppression diode and ground
		KJ	Solenoid plug-in housing without wire assembly
		KM	Solenoid plug-in housing with ground pin without wire assembly
		KN	KA with suppression diode and blocking diode
		KP	KA with suppression diode, blocking diode and ground
		KT	KA with light
		KU	KA with light and ground
		KV	KA with suppression diode and light
		KW	KA with suppression diode, light and ground
		KX	KA with suppression diode, blocking diode and light
		KY	KA with suppression diode, blocking diode, light & ground
2. WIRE LENGTH		ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	WIRE LENGTH	G-XX X-X XX	PLUG-IN OPTIONS
0	No lead wires (used only with "KJ" & "KM" connectors)	DC	Base/manifold plug-in with rectifier and light
A	45 cm – 18" coil leads	DD	Base/manifold plug-in with rectifier, light and ground
B	60 cm – 24" coil leads	DE	Base/manifold plug-in with with suppression diode
C	90 cm – 36" coil leads	DF	Base/manifold plug-in with suppression diode and ground
D	120 cm – 48" coil leads	DJ	Base/manifold plug-in
E	180 cm – 72" coil leads	DM	Base/manifold plug-in with ground
F	240 cm – 96" coil leads	DT	Base/manifold plug-in with light
G	305 cm – 120" coil leads	DU	Base/manifold plug-in with light and ground
H	366 cm – 144" coil leads	DV	Base/manifold plug-in with suppression diode and light
1	45 cm – 18" base leads	DW	Base/manifold plug-in with suppression diode, light and ground
2	60 cm – 24" base leads		
3	90 cm – 36" base leads		
4	120 cm – 48" base leads		
5	180 cm – 72" base leads		
6	240 cm – 96" base leads		
7	305 cm – 120" base leads		
3. MANUAL OPERATOR			
G-XX X-X XX	MANUAL OPERATOR		
1	Non-locking recessed		
2	Locking recessed		
3	Non-locking extended		
4	Locking extended		



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Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **-GM- G XX X-X XX**
1 2 3 4

OPTIONS AVAILABLE FOR

- Solenoid valves 52 & 400 Series

1. VOLTAGE		4. ELECTRICAL CONNECTION	
G-XX X-X XX	VOLTAGE	G-XX X-X XX	ELECTRICAL CONNECTION
DC	24 V=/1,8 W	BA	Flying leads
DD	24 V=/2,5 W	BB	BA with ground wire
DE	24 V=/3,0 W	BC	BA with light parallel to leads
DF	24 V=/4,0 W	BD	BA with light parallel to leads & ground wire
DJ	12 V=/1,8 W	BE	BA with suppression diode
DK	12 V=/2,5 W	BF	BA with suppression diode & ground wire
DM	12 V=/3,0 W	BG	BA with suppression diode plus light parallel to leads
DN	12 V=/4,0 W	BH	BA with suppression diode plus light parallel to leads & ground wire
2. WIRE LENGTH		*BN	BA with suppression diode plus blocking diode
G-XX X-X XX	WIRE LENGTH	*BP	BA with suppression diode plus blocking diode & ground wire
O	No lead wire (use only with "KJ" & "KM" electrical connectors)	*BR	BA with suppression diode plus blocking diode & light parallel to leads
A	45 cm = 18"	*BS	BA with suppression diode plus blocking diode & light parallel to leads & ground wire
B	60 cm = 24"	BT	BA with light on top
C	90 cm – 36"	BU	BA with light on top & ground wire
D	120 cm – 48"	BV	BA with suppression diode plus light on top
E	180 cm – 72"	BW	BA with suppression diode plus light on top & ground wire
F	240 cm – 96"	*BX	BA with suppression diode plus blocking diode & light on top
G	305 cm = 120"	*BY	BA with suppression diode plus blocking diode & light on top & ground wire
H	366 cm = 144"		
3. MANUAL OPERATOR		G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
G-XX X-X XX	MANUAL OPERATOR	KA	Plug-in wire assembly
1	Non-locking recessed	KB	KA with ground wire
2	Locking recessed	KE	KA with suppression diode
3	Non-locking extended	KF	KA with suppression diode & ground wire
4	Locking extended	KJ	Plug-in housing without wire assembly ('KA' without wire assembly)
		KM	Plug-in housing without wire assembly ('KB' without wire assembly)
		*KN	KA with suppression diode plus blocking diode
		*KP	KA with suppression diode plus blocking diode & ground wire
		KT	KA with light on top
		KU	KA with light on top & ground wire
		KV	KA with suppression diode plus light on top
		KW	KA with suppression diode plus light & ground wire
		*KX	KA with suppression diode plus blocking diode & light on top
		*KY	KA with suppression diode plus blocking diode & light on top & ground wire

Note: Blocking diode is located in the lead wire



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Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► $H \frac{XX}{1} \frac{X-X}{2} \frac{XX}{3} \frac{XX}{4}$

OPTIONS AVAILABLE FOR

- Solenoid valves 37 & 47 Series

1. VOLTAGE		ELECTRICAL CONNECTION	
H-XX X-X XX	VOLTAGE	BL	BA with full wave rectifier & ground wire
AA	120 V~/ 50Hz, 120 V~/ 60Hz (6,7 W) (use connector with rectifier)	BT	BA with full wave rectifier plus light
AB	220 V~/ 50Hz, 220 V~/ 60Hz (5,6 W) (use connector with rectifier)	BU	BA with full wave rectifier plus light & ground wire
AC	240 V~/ 50Hz, 240 V~/ 60Hz (5,8 W) (use connector with rectifier)	H-XX X-X XX	PLUG-IN CONNECTOR
AD	24 V~/ 50Hz, 24 V~/ 60Hz (7,8 W) (use connector with rectifier)	FA	Base plug-in
DA	24 V~/5,2 W	FB	FA with ground wire
DB	24 V~/2,4 W	FC	FA with light
DC	24 V~/1,8 W	FD	FA with light & ground wire
DD	24 V~/1,0 W	FE	FA with suppression diode
DF	12 V~/5,2 W	FF	FA with suppression diode & ground wire
DG	12 V~/2,4 W	FG	FA with suppression diode & light
DH	12 V~/1,8 W	FH	FA with suppression diode plus light & ground wire
DJ	12 V~/1,0 W	FK	KFA with full wave rectifier
DL	120 V~/6,3 W	FL	FA with full wave rectifier & ground wire
		*FN	FA with suppression diode plus blocking diode
		*FP	FA with suppression diode plus blocking diode & ground wire
		*FR	FA with suppression diode plus blocking diode plus light
		*FS	FA with suppression diode plus blocking diode & light & ground wire
		FT	FA with full wave rectifier plus light
		FU	FA with full wave rectifier plus light & ground wire
		MA	Solenoid plug-in wire assembly
		MB	MA with ground wire
		MC	MA with light
		MD	MA with light & ground wire
		ME	MA with suppression diode
		MF	MA with suppression diode & ground wire
		MG	MA with suppression diode plus light
		MH	MA with suppression diode plus light & ground wire
		MK	MA with full wave rectifier
		ML	MA with full wave rectifier & ground wire
		*MN	MA with suppression diode plus blocking diode
		*MP	MA with suppression diode plus blocking diode & ground wire
		*MR	MA with suppression diode plus blocking diode & light
		*MS	MA with suppression diode plus blocking diode & light & ground wire
		MT	MA with full wave rectifier plus light
		MU	MA with full wave rectifier plus light & ground wire
		MJ	Plug-in housing without wire assembly ('MA' option without wire assembly)
		MM	Plug-in housing without wire assembly ('MB' option without wire assembly)
		KA	Mini square connector
		KB	KA with suppression diode
		KC	KA with M.O.V.
		KD	KA with light
		KE	KA with light & suppression diode
		KF	KA with light & M.O.V.
		KJ	Mini square connector – male only
		KK	KJ with suppression diode
		KL	KJ with M.O.V.
		KM	KA with full wave rectifier
		KN	KA with full wave rectifier & M.O.V.
		KP	KA with full wave rectifier & light
		KR	KA with full wave rectifier plus light & M.O.V.
		KS	KJ with full wave rectifier
		Note: Blocking diode is located in the lead wire	

2. WIRE LENGTH	
H-XX X-X XX	WIRE LENGTH
O	No lead wire (use with "MJ" & "MM" connectors)
A	45 cm = 18"
B	60 cm = 24"
C	90 cm = 36"
D	120 cm = 48"
E	180 cm = 72"
F	240 cm = 96"
G	305 cm = 120"
H	366 cm = 144"

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

4. ELECTRICAL CONNECTION	
H-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light & ground wire
BE	BA with suppression diode
BF	BA with suppression diode & ground wire
BG	BA with suppression diode plus light
BH	BA with suppression diode plus light & ground wire
*BN	BA with suppression diode plus blocking diode
*BP	BA with suppression diode plus blocking diode & ground wire
*BR	BA with suppression diode plus blocking diode & light
*BS	BBA with suppression diode plus blocking diode & light & ground wire
BK	BA with full wave rectifier



0 p t i o n s

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

OPTIONS AVAILABLE FOR

- Solenoid valves 36 and 46 Series

1. VOLTAGE

J-XX X-X XX	VOLTAGE
AA	120V~/5,4W
AC	24V~/5,4W
DA	24V~/5,4W
DB	12V~/5,4W
DC	24V~/2,4W
DD	12V~/2,4W
DE	24V~/1,8W
DF	12V~/1,8W

2. WIRE LENGTH

J-XX X-X XX	WIRE LENGTH
A	45 cm – 18" coil leads
B	60 cm – 24" coil leads
C	90 cm – 36" coil leads
D	120 cm – 48" coil leads
E	180 cm – 72" coil leads
F	240 cm – 96" coil leads
P	Base plug-in

3. MANUAL OPERATOR

J-XX X-X XX	MANUAL OPERATOR
0	Manual operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking recessed extended
4	Locking extended

4. ELECTRICAL CONNECTION

J-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
GA	MAC JAC solenoid plug-in
GB	MAC JAC solenoid plug-in with diode
GC	MAC JAC solenoid plug-in with MOV
GD	MAC JAC solenoid plug-in with light
GE	MAC JAC solenoid plug-in with diode and light
GF	MAC JAC solenoid plug-in with MOV and light
GG	MAC JAC solenoid plug-in with rectifier
GH	MAC JAC solenoid plug-in with rectifier and light
GJ	MAC JAC solenoid plug-in – Male only
GK	MAC JAC solenoid plug-in with diode – Male only
GL	MAC JAC solenoid plug-in with MOV – Male only
GM	MAC JAC solenoid plug-in with light – Male only
GN	MAC JAC solenoid plug-in with diode and light – Male only
GP	MAC JAC solenoid plug-in with MOV and light – Male only
GR	MAC JAC solenoid plug-in with rectifier – Male only
GS	MAC JAC solenoid plug-in with rectifier and light – Male only
*JA	Square plug-in
*JB	Rectangular plug-in
*JC	Square plug-in with light
*JD	Rectangular plug-in with light
*JJ	Square plug-in – Male only
*JM	Rectangular plug-in – Male only

* Not available on manifold or stacking valves

J-XX X-X XX MINI SQUARE PLUG-IN CONNECTORS
9,4 MM SPACING BETWEEN PINS

KA	Mini plug-in
KB	Mini plug-in with diode
KC	Mini plug-in with MOV
KD	Mini plug-in with light
KE	Mini plug-in with diode and light
KF	Mini plug-in with MOV and light
KG	Mini plug-in with rectifier
KH	Mini plug-in with rectifier and light
KJ	Mini plug-in – Male only
KK	Mini plug-in with diode – Male only
KL	Mini plug-in with MOV – Male only
KM	Mini plug-in with light – Male only
KN	Mini plug-in with diode and light – Male only
KP	Mini plug-in with MOV and light – Male only
KR	Mini plug-in with rectifier – Male only
KS	Mini plug-in with rectifier and light – Male only

* Not available on manifold or stacking valves

J-XX X-X XX CONNECTORS FOR NON PLUG-IN VALVES
MINI SQUARE PLUG-IN CONNECTORS
8,0 MM SPACING BETWEEN PINS
ISO SPECIFICATION 15217

LA	Mini plug-in
LB	Mini plug-in with diode
LC	Mini plug-in with MOV
LD	Mini plug-in with light
LE	Mini plug-in with diode and light
LF	Mini plug-in with MOV and light
LG	Mini plug-in with rectifier
LH	Mini plug-in with rectifier and light
LJ	Mini plug-in – Male only
LK	Mini plug-in with diode – Male only
LL	Mini plug-in with MOV – Male only
LM	Mini plug-in with light – Male only
LN	Mini plug-in with diode and light – Male only
LP	Mini plug-in with MOV and light – Male only
LR	Mini plug-in with rectifier – Male only
LS	Mini plug-in with rectifier and light – Male only

J-XX X-X XX CONNECTORS FOR PLUG-IN VALVES

FA	Base plug-in
FB	Base plug-in with diode
FC	Base plug-in with MOV
FD	Base plug-in with light
FE	Base plug-in with diode and light
FF	Base plug-in with MOV and light
FG	Base plug-in with rectifier
FH	Base plug-in with rectifier and light



0 p t i o n s

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

L **XX** **X-X** **XX**
1 **2** **3** **4**

OPTIONS AVAILABLE FOR

- Solenoid valves 32, 38, 42, 44, 47 & 48 Series

1. VOLTAGE (32, 38, 42, 44, 48 SERIES)	1. VOLTAGE (47 SERIES)
--	------------------------

L-XX X-X XX	VOLTAGE
DF	24V=/4,0W
DN	12V=/4,0W
HA	24V=/1,95W
HE	12V=/1,95W

2. WIRE LENGTH

L-XX X-X XX	WIRE LENGTH
O	No lead wire
A	45 cm – 18"
B	60 cm – 24"
C	90 cm – 36"
D	120 cm – 48"
E	180 cm – 72"
F	240 cm – 96"
G	300 cm – 120"
H	365 cm – 144"

3. MANUAL OPERATOR (all series)

L-XX X-X XX	MANUAL OPERATOR
O	No operator
3	Non-locking extended

4. ELECTRICAL CONNECTOR (32, 38, 42, 44 & 48 series)	4. ELECTRICAL CONNECTOR (47 series)
--	-------------------------------------

L-XX X-X XX	NON PLUG-IN
BA	2 wire flying leads
BB	2 wire flying leads with ground wire
BC	2 wire flying leads with light
BD	2 wire flying leads with light & ground wire
BJ	4 wire flying leads
BK	4 wire flying leads with ground
BL	4 wire flying leads with light
BM	4 wire flying leads with light & ground wire
KA	2 wire plug-in assembly
KB	2 wire plug-in assembly with ground wire
KC	2 wire plug-in assembly with light
KD	2 wire plug-in assembly with light and ground wire
KE	4 wire plug-in assembly
KF	4 wire plug-in assembly with ground wire
KG	4 wire plug-in assembly with light
KH	4 wire plug-in assembly and ground wire
LA	3 wire plug-in assembly (polarity switching cover)

L-XX X-X XX	PLUG-IN
*DA	Base plug-in
*DB	Base plug-in with ground pin
*DC	Base plug-in with light
*DD	Base plug-in with light & ground pin
*EA	Base plug-in 3 pin (Polarity switching cover)

L-XX X-X XX	NON PLUG-IN
BA	2 wire flying leads
BB	2 wire flying leads with ground wire
BC	2 wire flying leads with light
BD	2 wire flying leads with light & ground wire
BJ	4 wire flying leads
BK	4 wire flying leads with ground
BL	4 wire flying leads with light
BM	4 wire flying leads with light & ground wire
EA	Base plug-in 3 pin (Polarity switching cover)
FA	Base plug-in with ground
FB	Base plug-in with ground & light
FC	Base plug-in 4 wire with ground
FD	Base plug-in 4 wire with light & ground
LA	3 wire plug-in assembly (Polarity switching cover)
MA	2 wire plug-in assembly
MB	2 wire plug-in assembly with ground wire
MC	2 wire plug-in assembly with light
MD	2 wire plug-in assembly with light and ground wire
ME	4 wire plug-in assembly
MF	4 wire plug-in assembly with ground wire
MG	4 wire plug-in assembly with light
MH	4 wire plug-in assembly and ground wire

Note: FA through FD options are for use with plug-in manifold bases.

* Use these options for plug-in base with 2 or 4 wire assemblies

** Use this option for plug-in bases with 3 wire assemblies



PRECAUTIONS CONCERNING THE APPLICATION, INSTALLATION AND SERVICE OF MAC VALVES

The precautions below are important to be read and understood before designing into a system any MAC valve, and before installing or servicing any MAC valve. Improper use, installation or servicing of any MAC valve in some systems could create a hazard to personnel or equipment.

APPLICATION PRECAUTIONS :

INDUSTRIAL USE -

MAC valves are intended for use in industrial pneumatic and/or vacuum systems. They are not intended for consumer use or service. They are general purpose industrial valves 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 are not designed nor intended to be used to operate and/or control the operation of clutch and/or brake systems on power presses. There are special products on the market for such use.

2-POSITION VALVES -

Some MAC valves are 2-position, 4-way valves. When air is supplied to the inlet port(s) of these valves, there will always be a flow path from the inlet to one of the outlets regardless of which of the two positions the valve is situated. Therefore, if pressurized air retained in the system would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the trapped air.

3- POSITION VALVES-

Some MAC valves are 3-position, 4-way valves. These valves are either double solenoid or double remote air operated.

If either of the two operators is in control, air supplied to the inlet port(s) will pass through the valve to one of the outlets as on 2-position, 4-way valves. However, if neither operator is in control, the valve moves to a center position. Listed below are the various center position functions :

A. CLOSED CENTER-

With this type valve, when in the center position all ports are blocked (inlets and exhausts) meaning the air at both outlet ports is trapped. If trapping the air in both outlet ports would present a hazard in the application or servicing, a separate method in the system must be provided to remove the trapped air or this type valve should not be used.

B. OPEN CENTER-

With this type valve, when in the center position, the inlet port(s) is blocked and the two outlet ports are open to the exhaust port(s) of the valve. If having no air in either outlet port would present a hazard in the application or servicing, this type valve should not be used.

C. PRESSURE CENTER-

With this type valve, when in the center position, the inlet port(s) is connected to both outlet ports of the valve. If having pressurized air to either or both outlet ports would present a hazard in the application or servicing of the valve or system, a separate method in the system must be provided to remove the retained air.

OPERATING SPECIFICATIONS -

MAC valves are to be installed only on applications that meet all operating specifications described in the MAC catalog for the valve.

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. Accidental activation of a manual operator could create a dangerous situation. If intentional or accidental operation of a valve by a manual operator could create a dangerous situation then the "no operator" option should be used.

REMOTE AIR OPERATED VALVES

Pilot valves supplying signal pressure to remote air operated valves should be 3-way valves with adequate supply and exhaust capacity to provide positive pressurizing and exhausting of the pilot supply line. Pilot lines should be open to exhaust when valves are deenergized.

INSTALLATION PRECAUTIONS :

- A. Do not install MAC valves on a machine without first turning off air (bleed system completely) and electricity to the machine.
- B. MAC valves 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.

SERVICE PRECAUTIONS :

- A. Do not service or remove from service any MAC valve without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.
- B. MAC valves should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.
- C. MAC valves are never to be stepped on while working on a machine. Damage to the valve, or lines to the valve (either air or electrical lines) or accidental activating of a manual operator on the valve could result in a dangerous situation.

WARNING:

Under no circumstances are Mac valves to be used on power presses for air clutch and/or brake operations where failure of the valve to operate as intended could in any way jeopardize the safety of the operator or any other person. Under no circumstances are Mac valves to be used in any circuit or in any manner intended to prevent unintended operation of any machinery or other equipment where failure of the valve to operate as intended could jeopardize the safety of the operator or any other person. Air valves are not safety devices nor should they be used in safety systems of any type.

LIMITATION OF GUARANTEE

This Guarantee is limited to the replacement or rebuilding of any valve which should fail to operate properly. Valves, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program.

DISCLAIMER OF GUARANTEE

No claims for labor, material, time, damage, or transportation are allowable nor will any valve be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability.

The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.