

MAC VALVES INC. has earned a reputation as an innovator in solenoid air valve technology as is evidenced by our numerous global patents.

MAC's designs focus on offering customers the best performing products available on the market. Some of the key features MAC's products offer are:

- reliability
- speed
- repeatability
- non lube service
- ease of maintenance
- compact packaging
- modularity
- specific application modifications
- low wattage
- broad electrical options

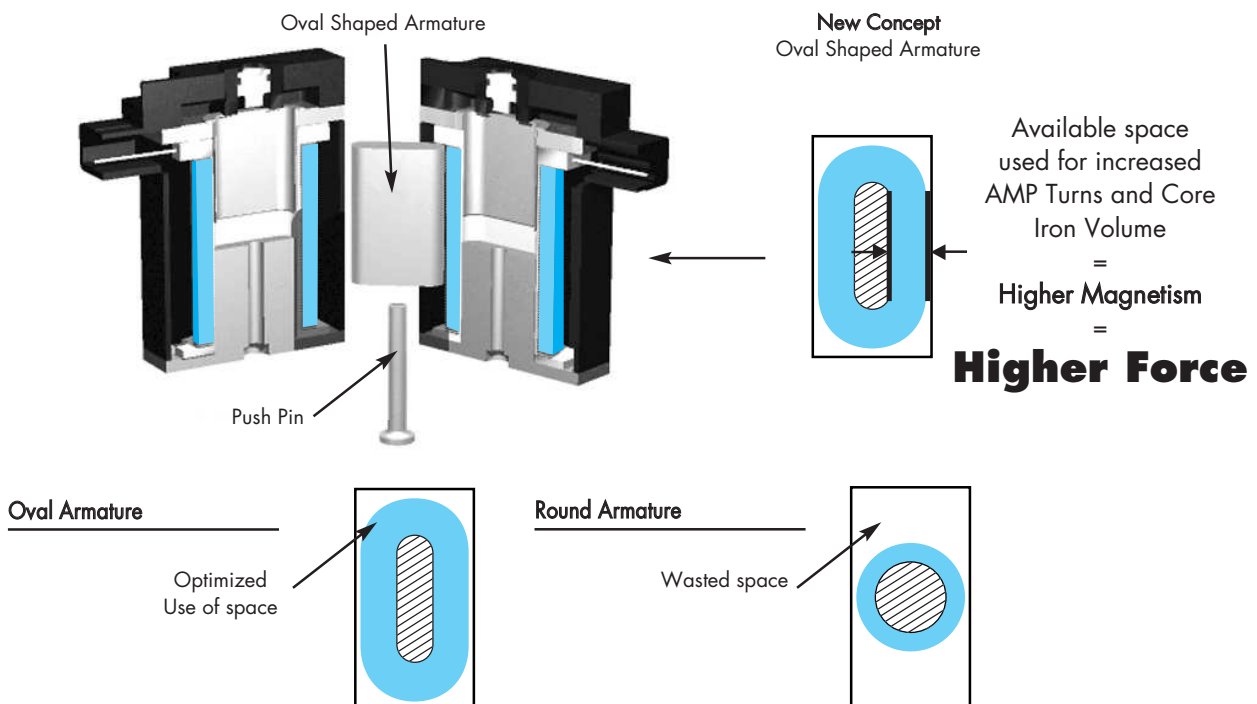
Many of these performance advantages are based on MAC's high shifting forces. MAC's patented oval shaped armature solenoid and 4-way pilot technologies are two new concepts which result in extremely high shifting forces in small packages.

I. OVAL SHAPED ARMATURE SOLENOID —Maximized Shifting Forces

Compared with typical round armature solenoids, the oval shaped armature design results in much higher shifting forces due to the following:

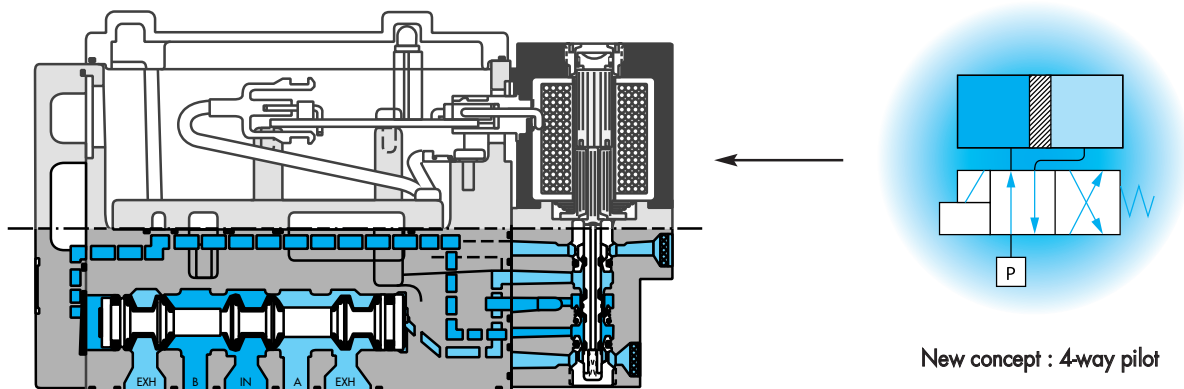
- Increased coil windings (amp turns)
- Increased core iron volume

With more amp turns and core iron than conventional round armature designs, more shifting force is available to shift through contaminated air resulting in reliable shifting valves.



II. MAC's 4-WAY PILOT SYSTEM – Maximized Shifting Forces

The balanced 4-way pilot valve provides maximum shifting forces in both directions by supplying air alternately to each end section of the spool, similar to a double acting rodless cylinder. This system provides maximized shifting forces, equal forces at energization and de-energization, with no resistance to shifting at either end. The result is increased shifting reliability and faster, more consistent response times.

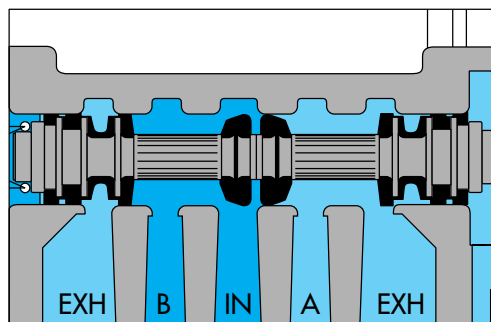


III. MAC'SPATENDED BONDED SPOOL AND BORE – Balanced, Wiping Action, Minimized Friction

MAC invented the bonded spool and bore combination ensuring balanced operation, built in wiping action to contend with air line contaminants with minimal friction. Precision ground and chemically hardened bonded seals control compression and eliminates creep leading to optimum sealing with minimum resistance to shifting. Built in lubricants in the rubber compound enhances non lube service and extends seal life.

A precision machined bore, roller burnished and polished, results in hard smooth surfaces with a glasslike finish to help minimize friction and wear. The end result is exceptionally long seal life.

MAC's short stroking, lightweight aluminum spools produce fast, repeatable response times.



MAC's Bonded Spool and Bore

- Balance
- Wiping Action
- Minimized Friction
- Long Life

TLD 5

Traveling Lab Demonstration measures critical valve performance characteristics - Response time, repeatability and flow.



Powerful tool that includes all necessary components to:

- ✓ *Make on-site measurements*
- ✓ *Show the benefits of the MAC valves*
- ✓ *Illustrate high shifting forces and balanced design*
- ✓ *Compare MAC valves with competition products*
- ✓ *In a compact and easy to transport package*



MAC Valves 18 month guarantee plus lifetime coil guarantee

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

The flat rate rebuild program

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

Pneumatic functions

All valves inside the MAC product range allow for multiple pneumatic functions. Direct solenoid and solenoid pilot operated valves could be used as 2 ways, 3 ways (NO, NC) or 4 ways. When plugging one orifice to achieve a 2 way function (or 3 way), it will not affect the valve operation.

- Direct solenoid valves 3 ways : universal
The following functions are available

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

- Pilot operated valves 3 ways :
The following functions are available

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

- Direct solenoid valves 4 ways :
The following functions are available

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

- Pilot operated valves 4 & 5 ways :
The following functions are available

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

EVERY VALVE FULLY TESTED PRIOR TO SHIPMENT

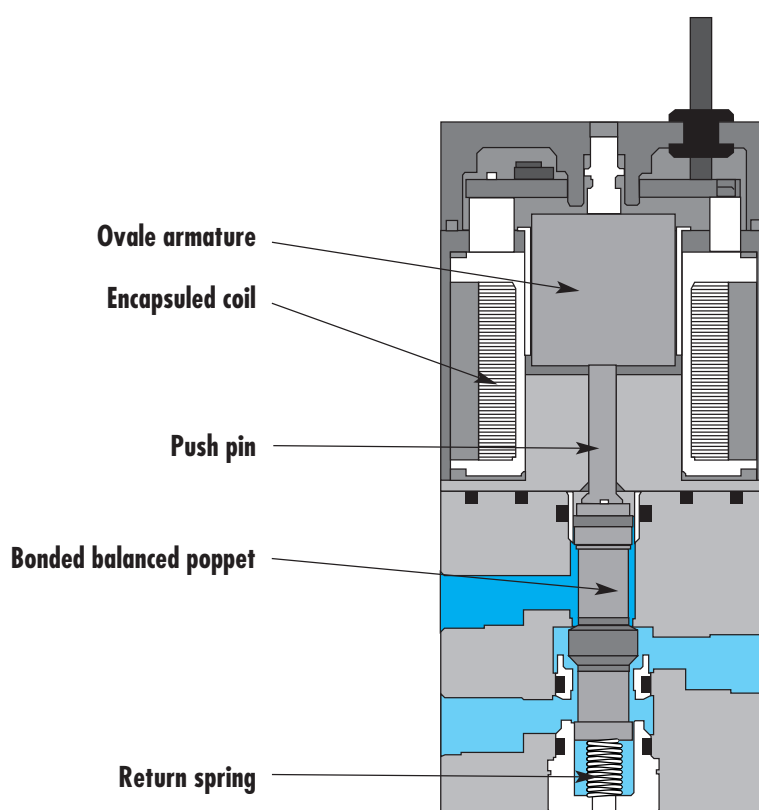
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Direct solenoid and solenoid pilot operated valves 6 mm valve

Individual mounting

inline	
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SERIES FEATURES

- Patented high force MACSOLENOID® for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- 6 mm direct operated valve.
- Very fast response times.

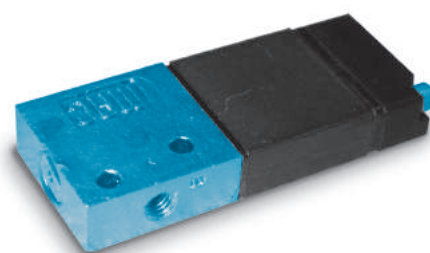


Direct solenoid and solenoid pilot operated valves 6 mm valve

Function	Port size	Flow [Max]	Mounting
3/2 NC	M 3	20 to 50 l/min	Individual inline

OPERATIONAL BENEFITS

1. 6mm valve direct solenoid operated
2. Balanced poppet, immune to pressure variations
3. Short stroke with high flow
4. Patented solenoid develops high shifting forces
5. Low wattage solenoids
6. Powerful return spring
7. Extremely fast response times
8. Universal valve



HOW TO ORDER

Port size	NC only valve
M3	 31A-AAB-T XXX-XXX

SOLENOID OPERATOR ➤

T **XXX-XXX ***

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DC 24V=/1.8W	A 45 cm	0 No operator*	BA Flying leads
DD 24V=/2.5W	B 60 cm	1 Non-locking	
DE 24V=/3.0W	C 90 cm		
DF 24V=/4.0W			
DJ 12V=/1.8W			
DK 12V=/2.5W			
DL 12V=/3.0W			
DM 12V=/4.0W			

*Use this option only for high-speed models with differential air assist

For high-speed differential air assist models only

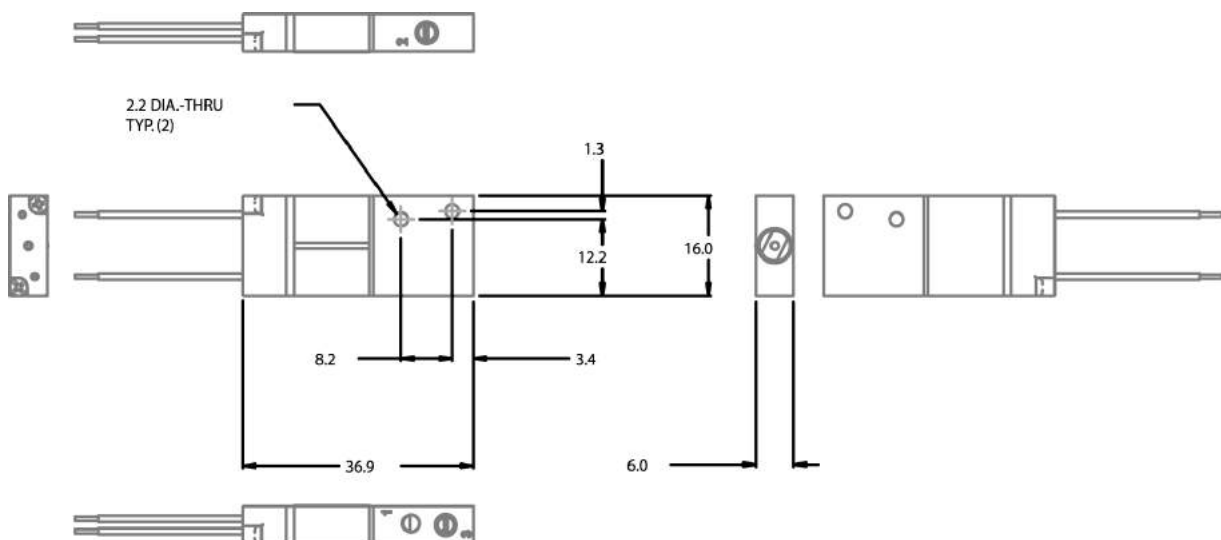
FA 24V=/60W
FB 24V=/90W
FC 24V=/230W

Mod number required for high speed models with differential air assist – consult factory

* Other options available, see page options

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	20 to 50 Nl/min (Cv 0,02 to 0,05)
Coil :	Class A wires – continuous duty
Voltage range :	-15% to +10%
Power :	1.8W, 2.5W, 3.0W, 4.0W - High wattages available, consult factory
Response times :	Energize: 1,8 ms De-energize: 0,8 ms

DIMENSIONS Dimensions shown are metric (mm)





0 p t i o n s

Codification table for voltages / Manual operators / Electrical connections

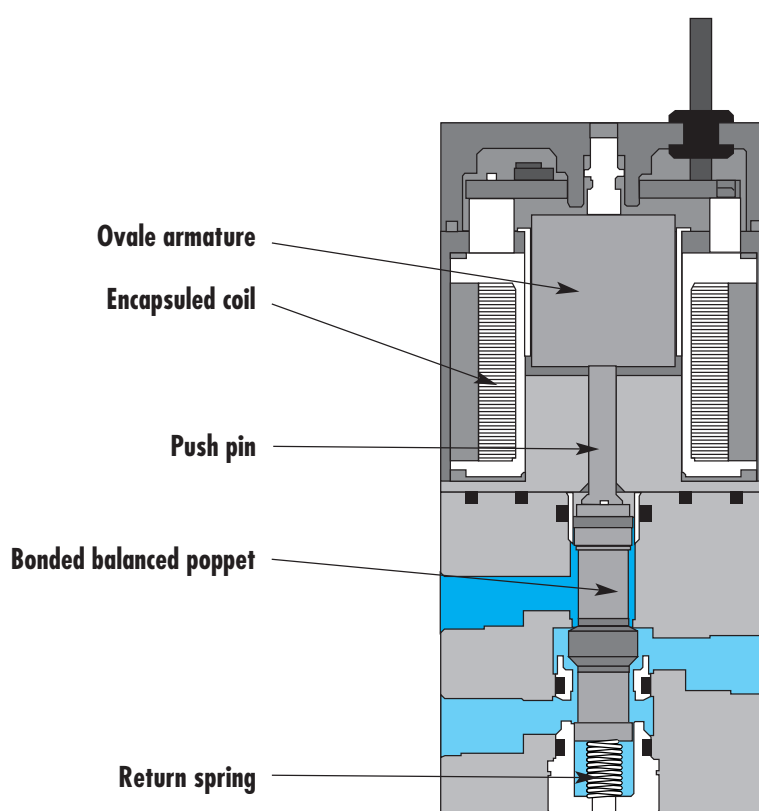
VALVE CODE ► **T XX X - X XX**
1 2 3 4

1. VOLTAGE		3. MANUAL OPERATOR	
T XX X - XXX	VOLTAGE	T XX X - XXX	MANUAL OPERATOR
DC	24 VDC (1.8W)	0	No operator
DD	24 VDC (2.5W)	1	Recessed non-locking
DE	24 VDC (3.0W)	3	Extended non-locking
DF	24 VDC (4.0W)		
DJ	12 VDC (1.8W)	4. ELECTRICAL CONNECTION	
DK	12 VDC (2.5W)	T XX X - XXX	
DL	12 VDC (3.0W)	ELECTRICAL CONNECTION	
DM	12 VDC (4.0W)	BA	
FA*	24 VDC (60W)	Flying leads	
FB*	24 VDC (90W)		
FC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT			
T XX X - XXX	WIRE LENGHT		
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"		

Direct solenoid and solenoid pilot operated valves 8 mm valve

Individual mounting

inline



SERIES FEATURES

- Patented high force MACSOLENOID® for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- Low wattage DC solenoids - down to 0.5 W.
- 8 mm direct operated valve.
- Very fast response times.

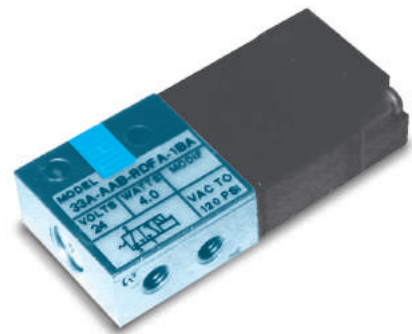


Direct solenoid and solenoid pilot operated valves 8 mm valve

Function	Port size	Flow [Max]	Individual mounting
3/2 NC	M 3	82 NI/min	Inline

OPERATIONAL BENEFITS

1. 8mm valve direct solenoid operated
2. Balanced poppet, immune to pressure variations
3. Short stroke with high flow
4. Patented solenoid develops high shifting forces
5. Low wattage solenoids
6. Powerful return spring
7. Extremely fast response times



HOW TO ORDER

Port size	NC only valve	NC only valve**
M3	33A-AAB-R xxx-xxx	33A-BAB-R xxx-xxx

** For use with solenoids above 4.0 W - MOD number required. (Consult factory)

SOLENOID OPERATOR ➤

Rxxx-xxx*

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
DB	24V=/1.0W	0	No lead wire*	0	No manual operator	BA	Flying leads
DC	24V=/1.8W	A	45 cm	1	Non-locking recessed	BB	Flying leads w/LED
DF	24V=/4.0W	B	60 cm	3	Non-locking extended	BC	Flying leads w/MOV
DH	12V=/1.0W	C	90 cm			BD	Flying leads w/LED & MOV
DJ	12V=/1.8W	D	120 cm			RA	Mini JAC solenoid plug-in
DM	12V=/4.0W	E	180 cm			RB	Mini JAC solenoid plug-in w/LED
						RC	Mini JAC solenoid plug-in w/MOV
						RD	Mini JAC solenoid plug-in w/LED & MOV
						TA	JST Solenoid plug-in
						TB	JST Solenoid plug-in w/LED
						TC	JST Solenoid plug-in w/MOV
						TD	JST Solenoid plug-in w/LED & MOV

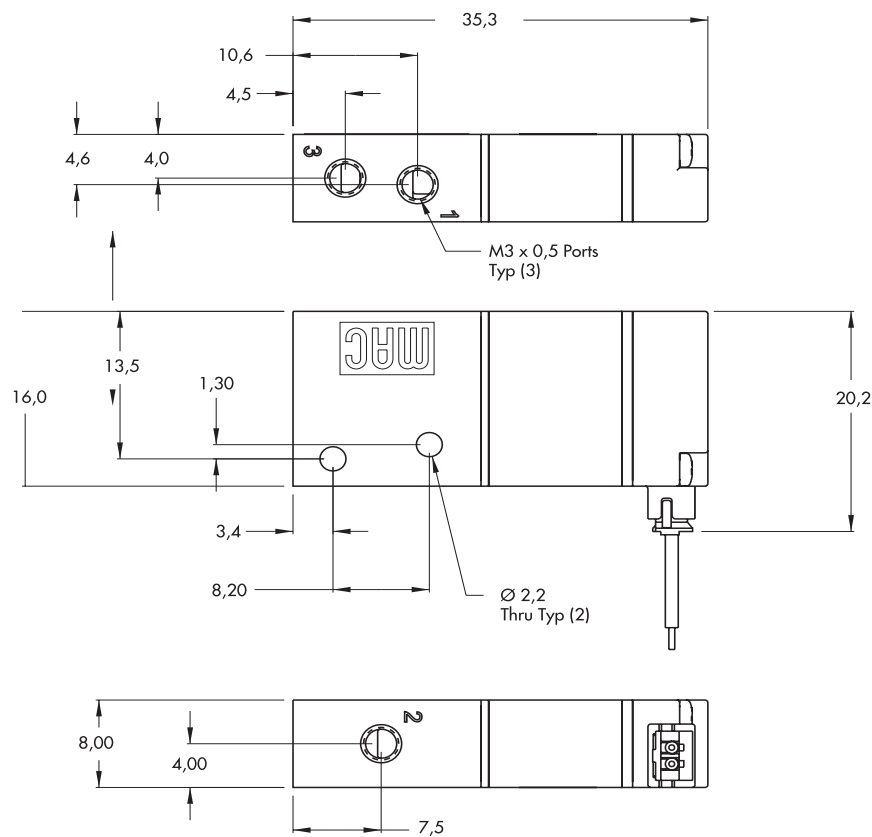
* Not available for flying leads connectors

* Other options available, see page **options**

Washdown capability is possible for the "B" and "R" type electrical connectors. Consult factory for ordering information.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	4W: 82 NL/min (0.82 Cv) - 3W: 62 NL/min (0.62 Cv) - 2.5W: 62 NL/min (0.62 Cv) - 1.8W: 55 NL/min (0.55 Cv) - 1.0W: 30 NL/min (0.3 Cv) - 0.5W: 20 NL/min (0.2 Cv)
Coil :	Class A wire (#26 AWG x18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W - 3.0W - 2.5W - 1.8W - 1.0W - 0.5W

DIMENSIONS	Dimensions shown are metric (mm)
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Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **R XX X - X XX**
1 2 3 4

1. VOLTAGE		3. MANUAL OPERATOR	
R XX X - XXX	VOLTAGE	R XX X - XXX	MANUAL OPERATOR
DB	24 VDC (1.0W)	0	No operator
DC	24 VDC (1.8W)	1	Non-locking recessed
DD	24 VDC (2.5W)	3	Non-locking extended
DE	24 VDC (3.0W)		
DF	24 VDC (4.0W)		
DH	12 VDC (1.0W)		
DJ	12 VDC (1.8W)		
DK	12 VDC (2.5W)		
DL	12 VDC (3.0W)		
DM	12 VDC (4.0W)		
EA*	24 VDC (60W)		
EB*	24 VDC (90W)		
EC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT		4. ELECTRICAL CONNECTION	
R XX X - XXX	WIRE LENGHT	ELECTRICAL CONNECTION FOR NON PLUG-IN VALVES	
0*	No lead wire	R XX X - XXX	
A	45 cm - 18"	BA	Flying leads
B	60 cm - 24"	BB	Flying leads with LED
C	90 cm - 36"	BC	Flying leads with MOV
D	120 cm - 48"	BD	Flying leads with LED and MOV
E	180 cm - 72"	DA	Base plug-in
F	240 cm - 96"	DB	Base plug-in with LED
G	300 cm - 120"	DC	Base plug-in with MOV
H	365 cm - 144"	DD	Base plug-in with LED and MOV
P	Base plug-in	RA	Mini JAC solenoid
* Not available for flying leads connector		RB	Mini JAC solenoid with LED
		RC	Mini JAC solenoid with MOV
		RD	Mini JAC solenoid with LED and MOV
		TA	JST solenoid plug-in
		TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
		ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
		R XX X - XXX	
		PA	Base plug-in
		PB	Base plug-in with light
		PC	Base plug-in with MOV
		PD	Base plug-in with light and MOV

MAC 34 Series

MAC

34 Series

2/2-way & 3/2-way direct solenoid operated

Available configurations:	Individual inline, individual base mounted and manifold base mounted
Port sizes:	M5, 10-32 UNC ports
Flow:	Up to 120 NI/min (0.12 Cv)
Pressure range:	Vacuum to 8 bar
Function:	3/2 normally closed, 3/2 universal
Operation:	Electrical

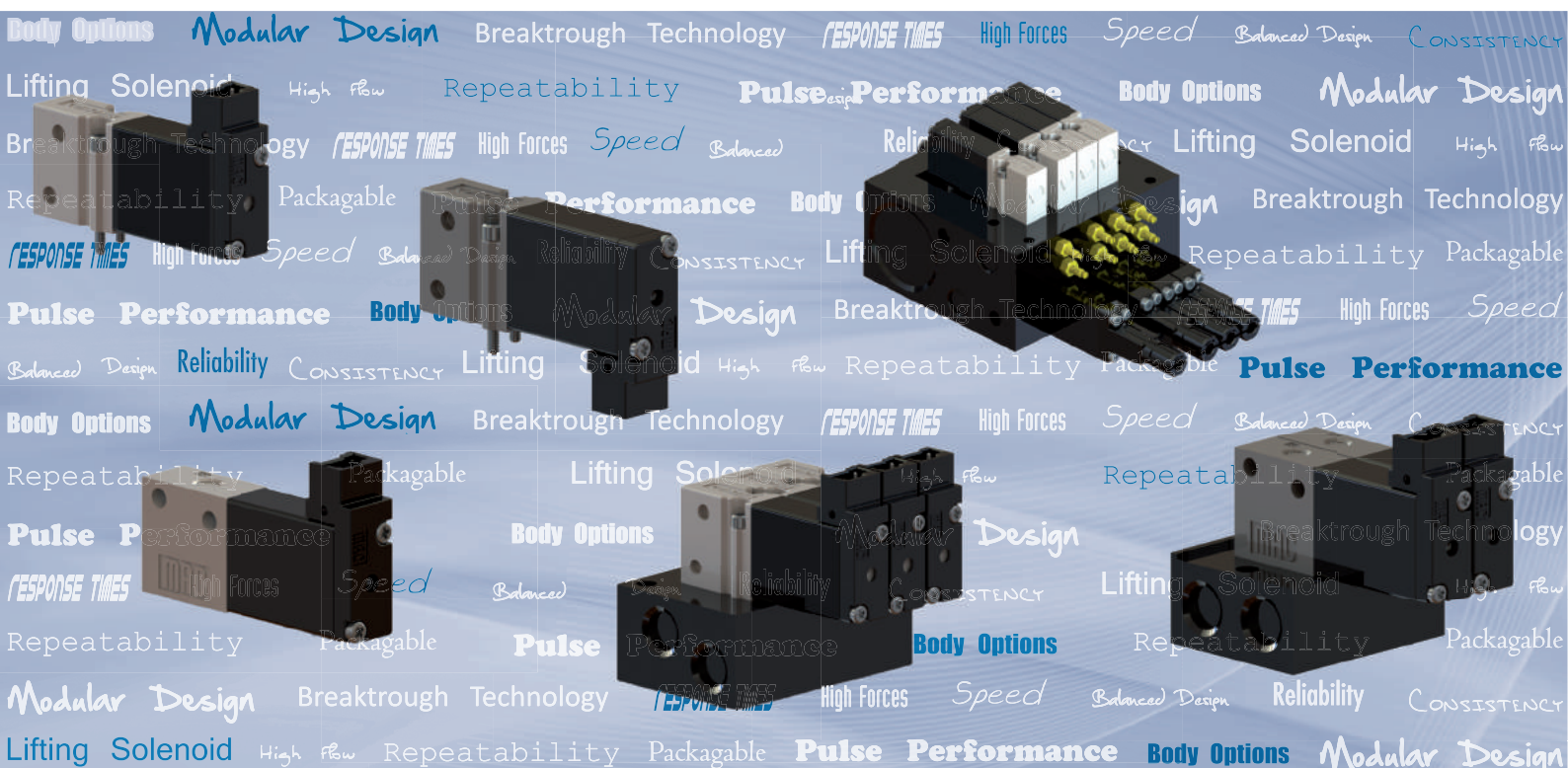


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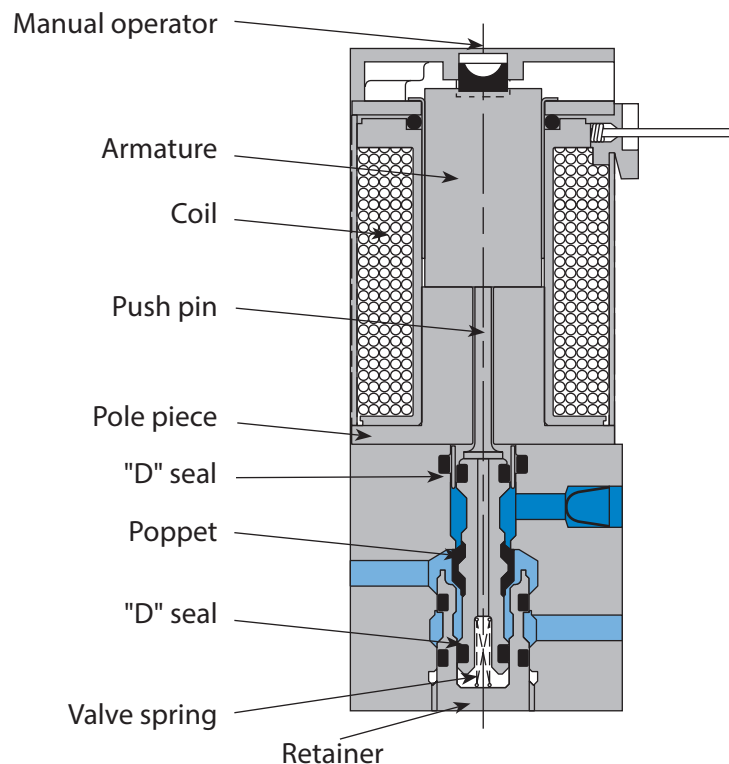
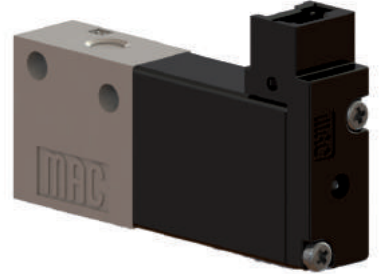
- *MAC 34 Series - Inline valve*
- *MAC 34 Series - Manifold non plug-in valve*
- *MAC 34 Series - Manifold plug-in valve*
- *MAC 34 Series - Universal 3/2 & 2/2*
- *MAC 34 Series - How to order*
- *MAC 34 Series - Solenoid options*
- *MAC 34 Series - Codification of valve (connectors)*

MAC 34 Series - Inline valve

3-way, 2 position, poppet

Flow up to 120 NI/min (0.12 Cv)

- ◇ Short stroke with high flow
- ◇ Balanced poppet, immune to variations of pressure allowing pressure and vacuum operation
- ◇ Bonded poppet with minimum friction, shifting in a glass-like finished bore
- ◇ Wiping effect, valve immune to contamination
- ◇ Long service life
- ◇ Direct operated valve
- ◇ 2/2-way function available
- ◇ Short stroke for high energization shifting force
- ◇ Strong return spring for high de-energization shifting force
- ◇ Universal poppet allowing normally closed & normally open operation



MAC 34 Series - Inline valve

Technical data

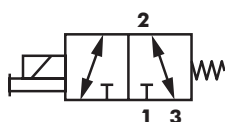
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	120 NI/min (0.12 Cv)
Coil:	Epoxy encapsulated - Class H wires
Voltage range:	-15% to +10% of nominal voltage
Power:	1.0 to 4.0 W
Response times:	24 V= /4 W Energize: 4.5 ms De-energize: 1.5 ms

Solenoid direct operated valve

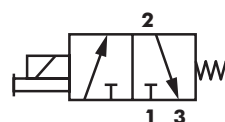
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

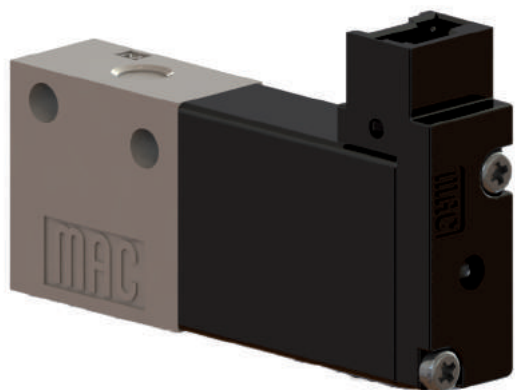
Individual inline valve can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

NORMALLY CLOSED ONLY MODELS

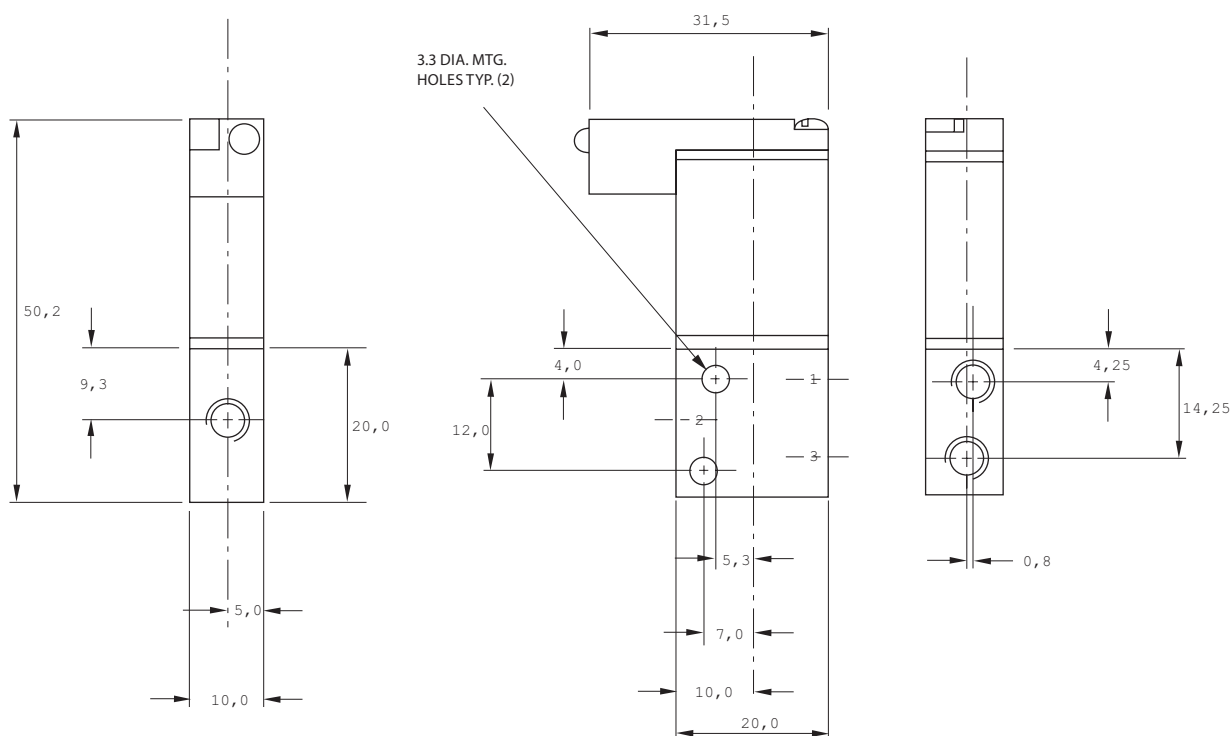
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

MAC 34 Series - Inline valve

Dimensions



All dimensions are in mm



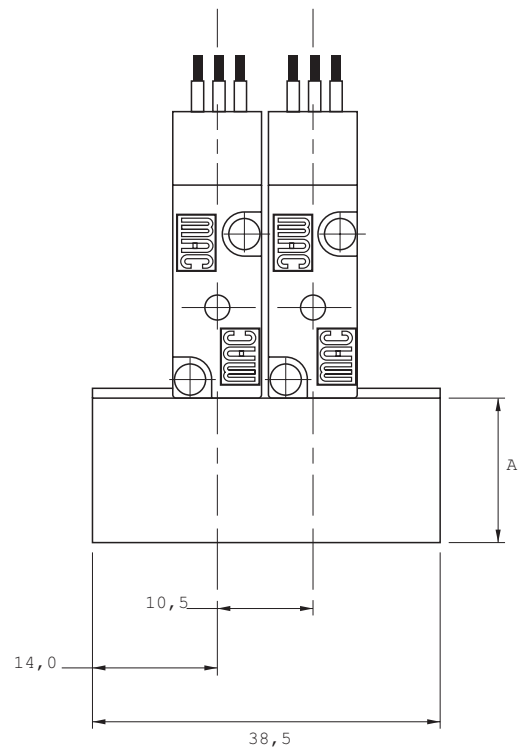
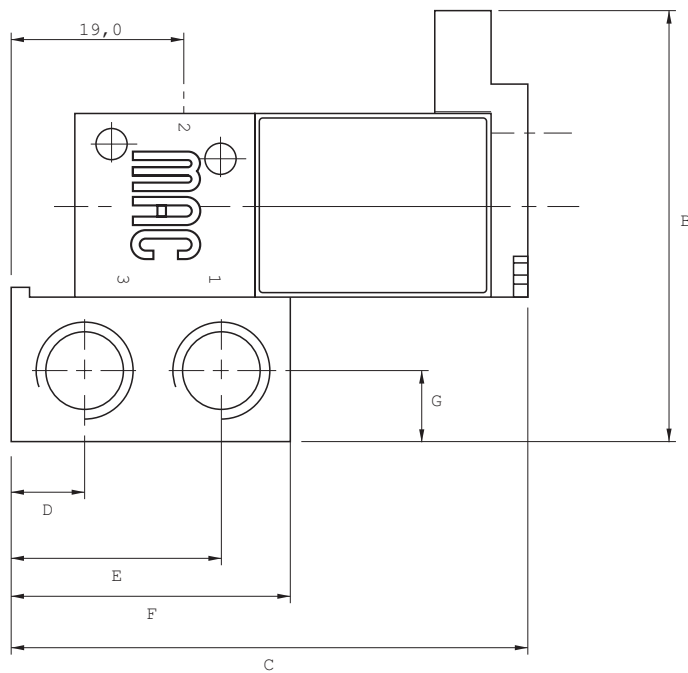
MAC 34 Series - Inline valve

Options

Cylinder ports in valve / manifold inline valve



All dimensions are in mm

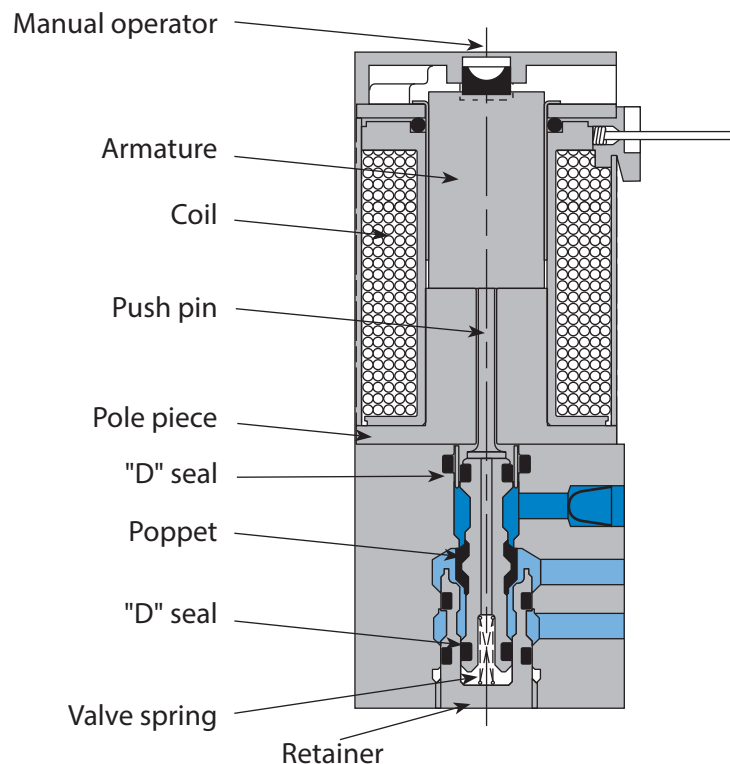


MAC 34 Series - Manifold non plug-in valve

3-way, 2 position, poppet

Flow up to 120 NI/min (0.12 Cv)

- ◇ Short stroke with high flow
- ◇ Balanced poppet, immune to variations of pressure allowing pressure and vacuum operation
- ◇ Bonded poppet with minimum friction, shifting in a glass-like finished bore
- ◇ Wiping effect, valve immune to contamination
- ◇ Long service life
- ◇ Direct operated valve
- ◇ 2/2-way function available
- ◇ Short stroke for high energization shifting force
- ◇ Strong return spring for high de-energization shifting force
- ◇ Universal poppet allowing normally closed & normally open operation



MAC 34 Series - Manifold non plug-in valve

Technical data

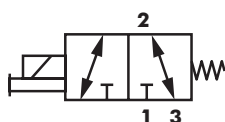
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	120 NI/min (0.12 Cv)
Coil:	Epoxy encapsulated - Class H wires
Voltage range:	-15% to +10% of nominal voltage
Power:	1.0 to 4.0 W
Response times:	24 V= /4 W Energize: 4.5 ms De-energize: 1.5 ms

Solenoid direct operated valve

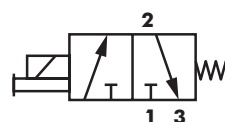
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

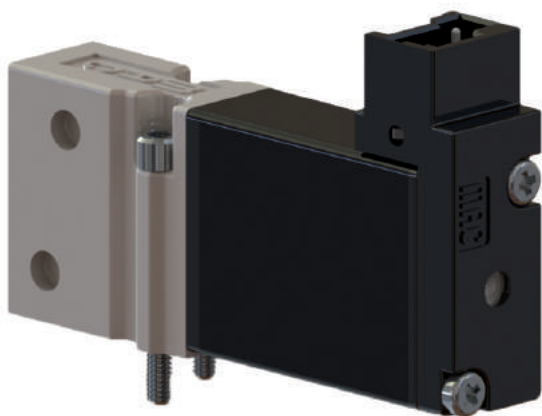
Manifold valve can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

NORMALLY CLOSED ONLY MODELS

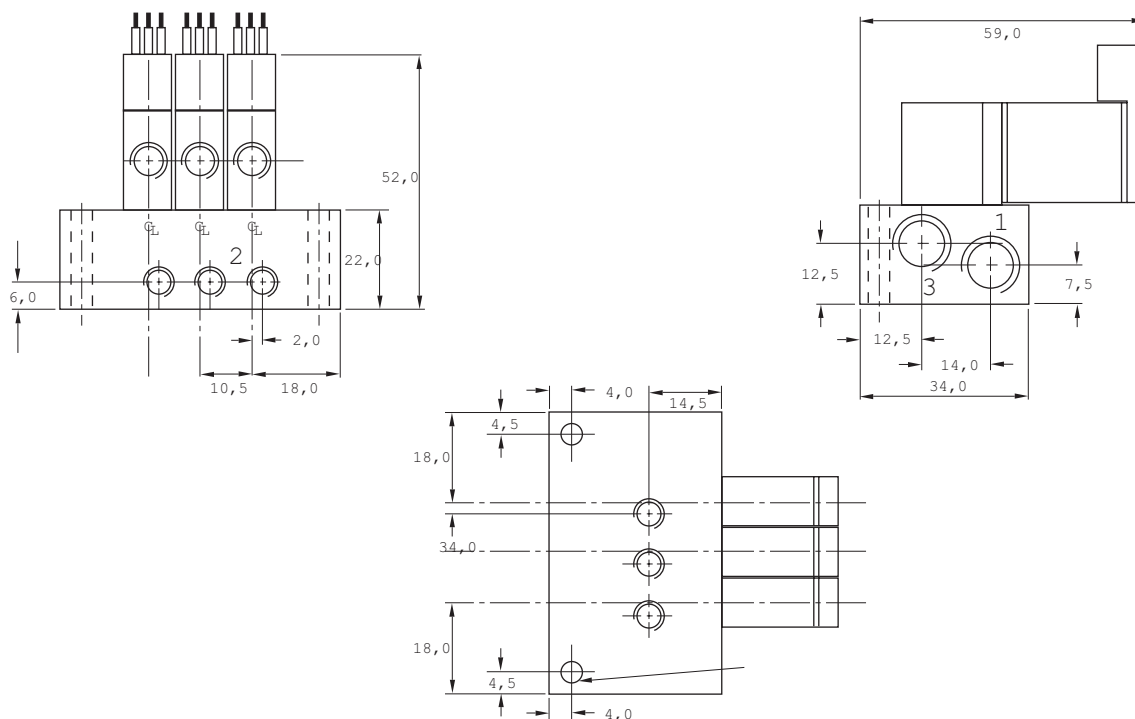
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

MAC 34 Series - Manifold non plug-in valve

Dimensions



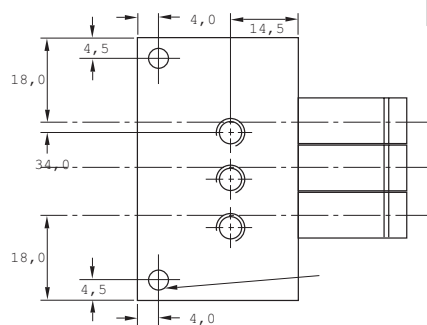
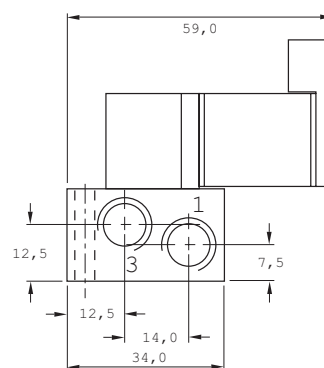
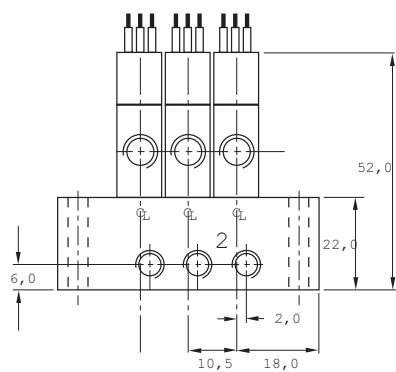
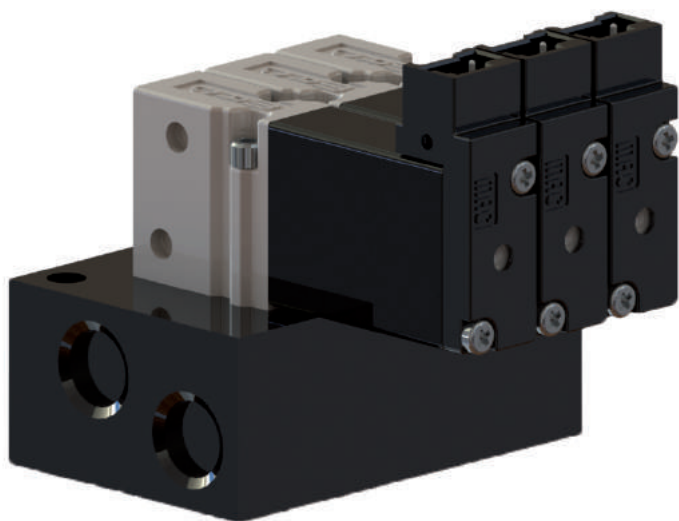
All dimensions are in mm



MAC 34 Series - Manifold non plug-in valve

Options

Cylinder ports in base / manifold non plug-in valve



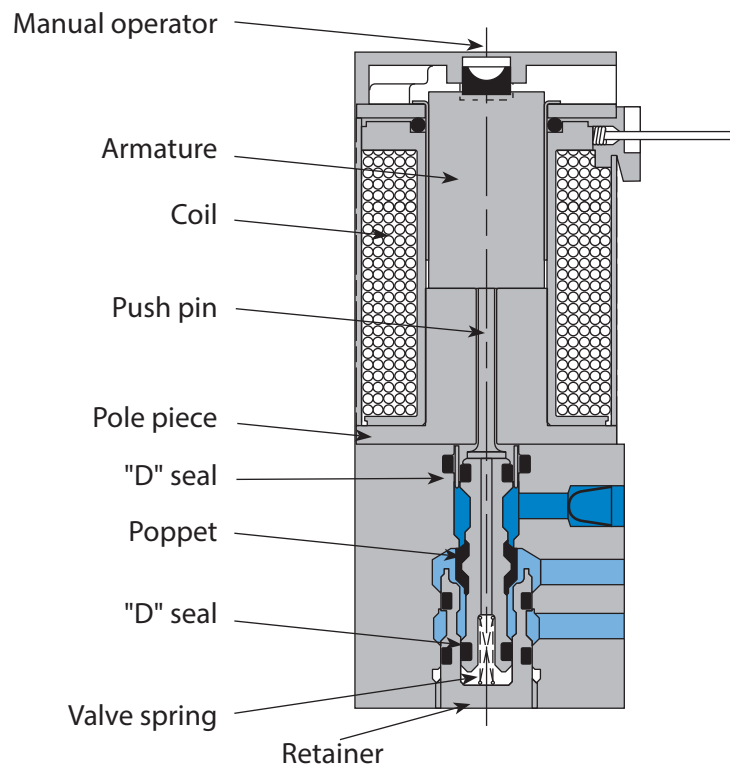
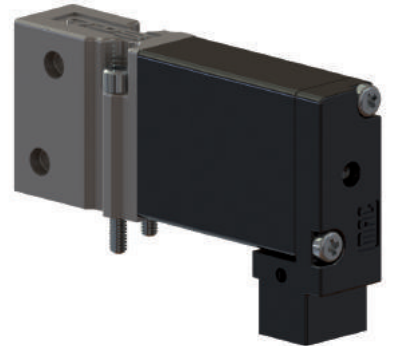
All dimensions are in mm

MAC 34 Series - Manifold plug-in valve

3-way, 2 position, poppet

Flow up to 120 NI/min (0.12 Cv)

- ◇ Short stroke with high flow
- ◇ Balanced poppet, immune to variations of pressure allowing pressure and vacuum operation
- ◇ Bonded poppet with minimum friction, shifting in a glass-like finished bore
- ◇ Wiping effect, valve immune to contamination
- ◇ Long service life
- ◇ Direct operated valve
- ◇ 2/2-way function available
- ◇ Short stroke for high energization shifting force
- ◇ Strong return spring for high de-energization shifting force
- ◇ Universal poppet allowing normally closed & normally open operation



MAC 34 Series - Manifold plug-in valve

Technical data

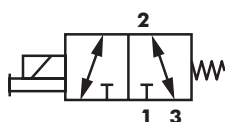
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	120 NI/min (0.12 Cv)
Coil:	Epoxy encapsulated - Class H wires
Voltage range:	-15% to +10% of nominal voltage
Power:	1.0 to 4.0 W
Response times:	24 V= /4 W Energize: 4.5 ms De-energize: 1.5 ms

Solenoid direct operated valve

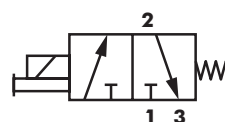
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

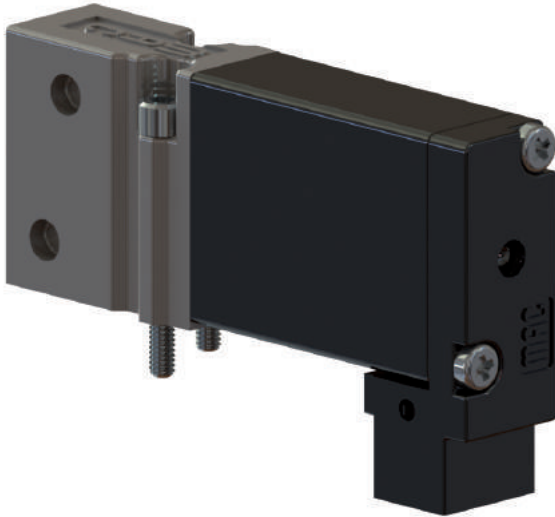
Manifold valve can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

NORMALLY CLOSED ONLY MODELS

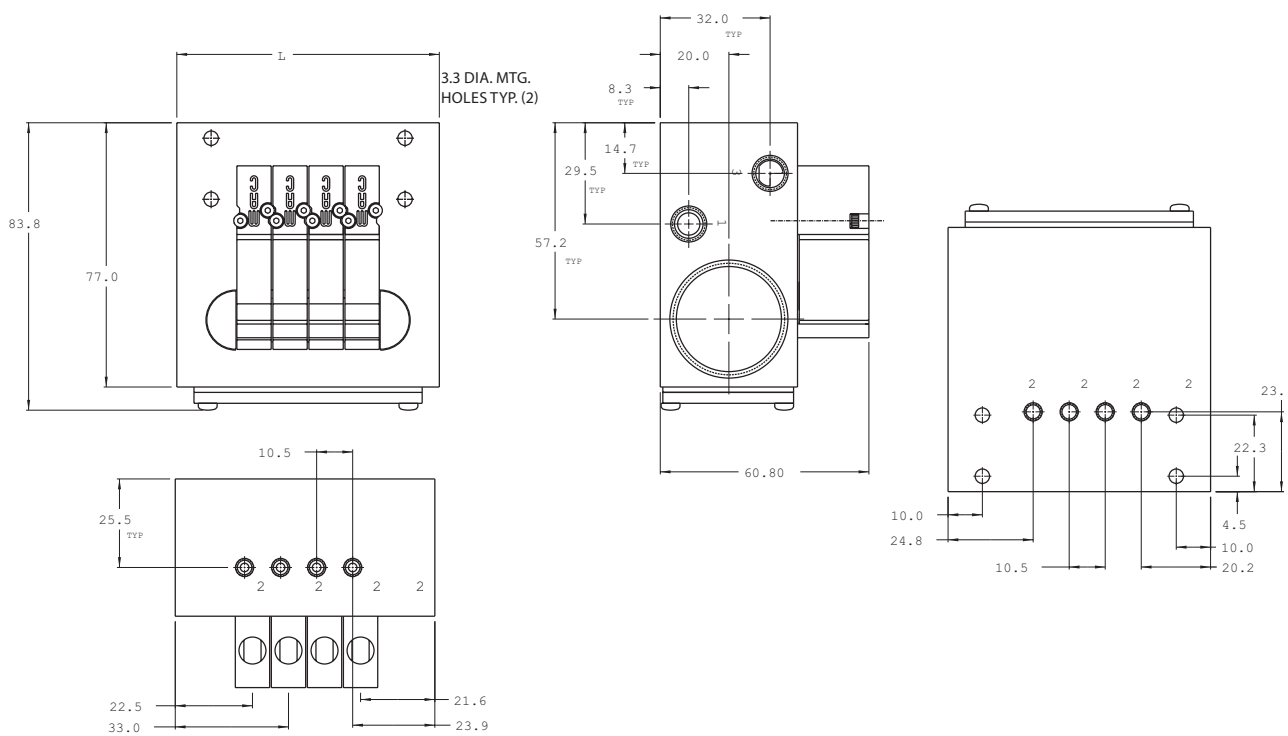
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

MAC 34 Series - Manifold plug-in valve

Dimensions



All dimensions are in mm

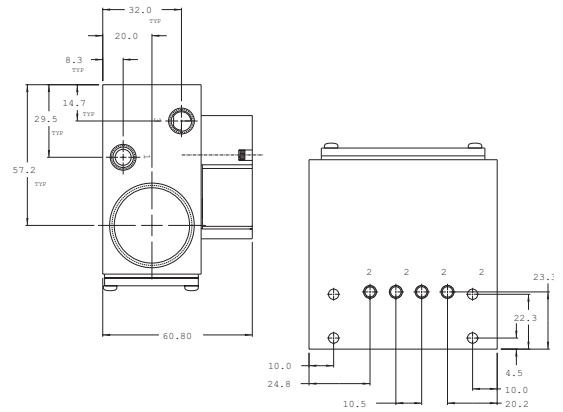
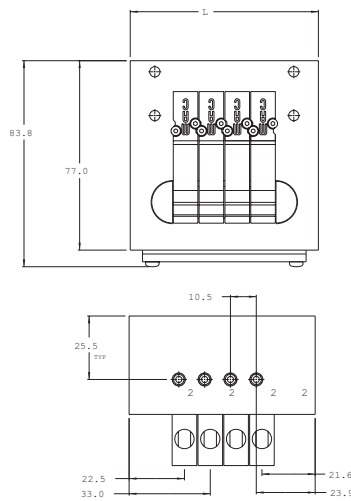
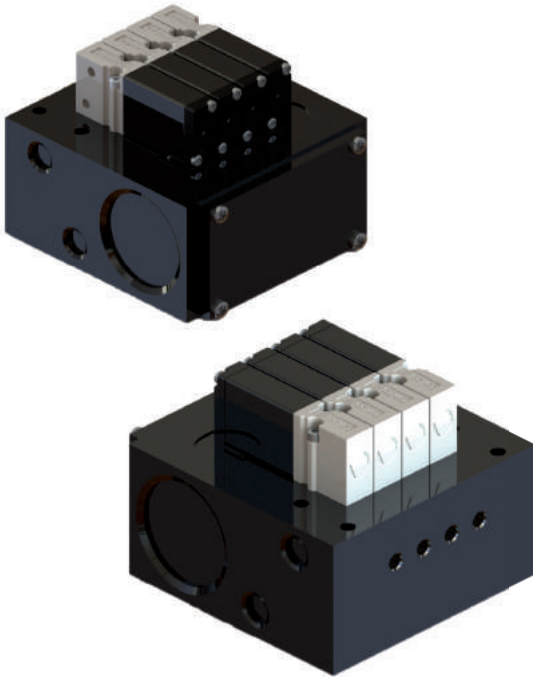


MAC 34 Series

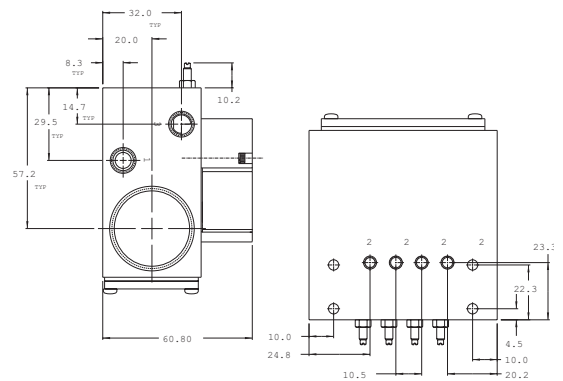
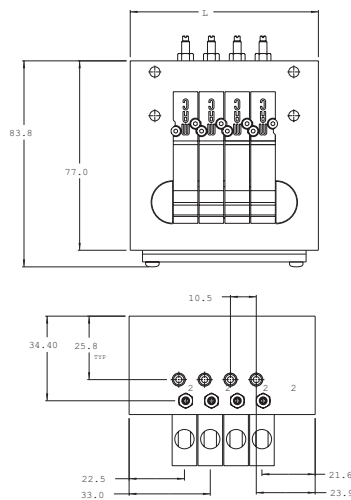
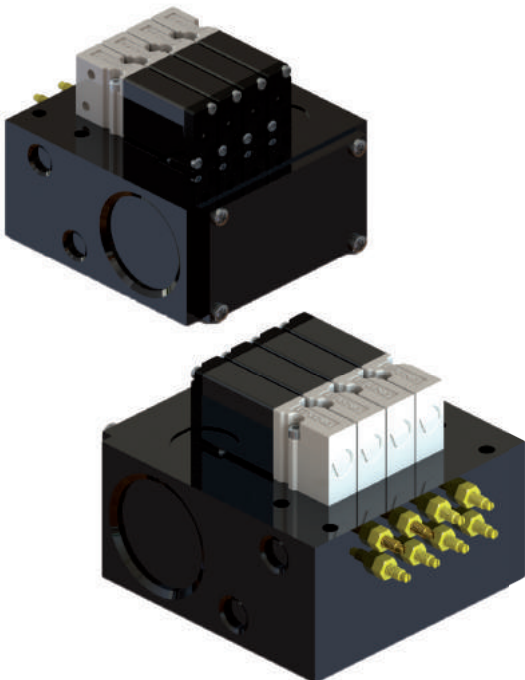
MAC 34 Series - Manifold plug-in valve

Options

Manifold without flow control and pressure regulator



Manifold with flow control



MAC Valves - Highly engineered solutions for the highest performing applications since 1948

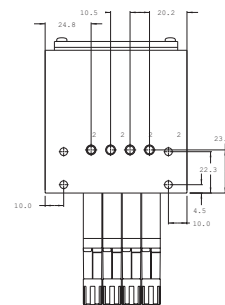
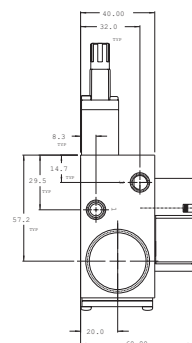
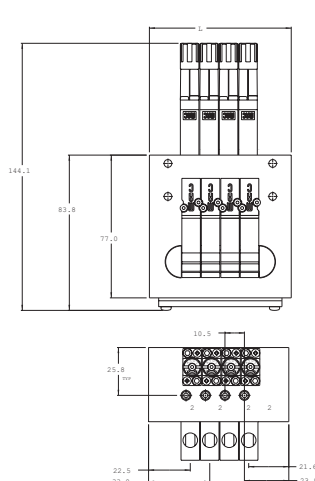
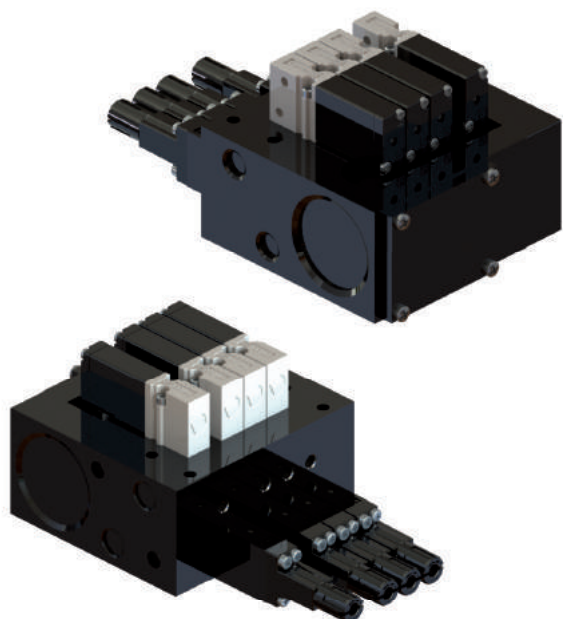
MAC Valves, Inc. Wixom, Michigan - MAC Valves, Inc. Dundee, Michigan - MAC Valves Europe, Inc. Liège, Belgium MAC Valves Asia, Inc. Taiwan

To find your **local** distributor, visit www.macvalves.com

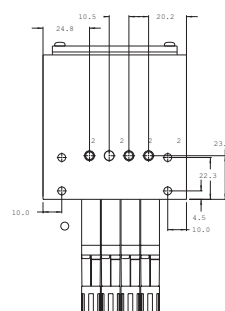
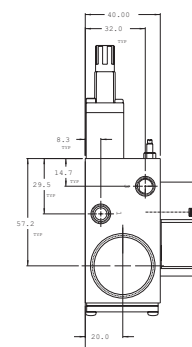
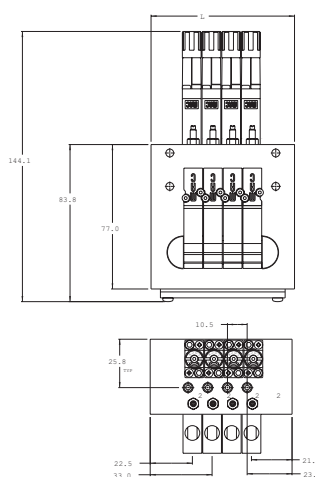
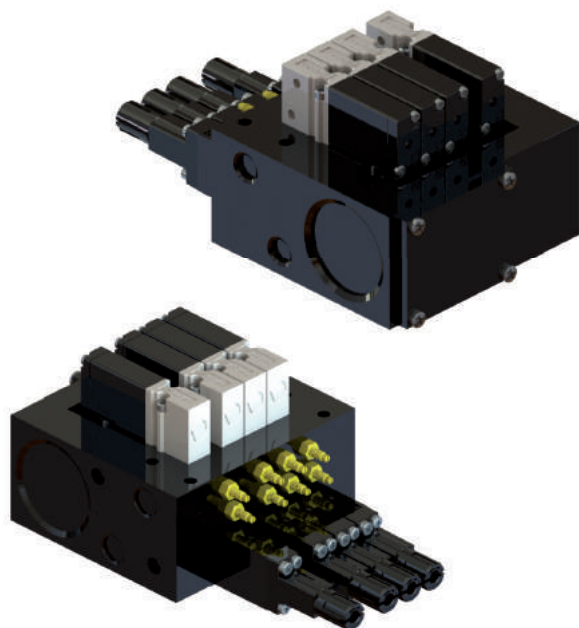
MAC 34 Series - Manifold plug-in valve

Options

Manifold with pressure regulator



Manifold with flow control and pressure regulator



MAC 34 Series - Universal 3/2 & 2/2

APPLICATION CONVERSION PROCEDURE:

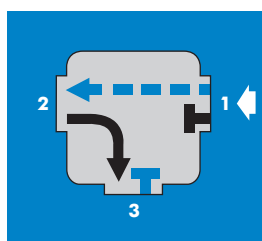
UNIVERSAL MODELS

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

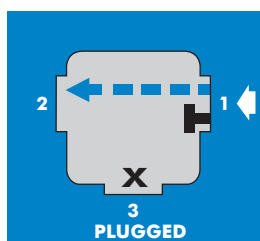
N.C. ONLY MODELS

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

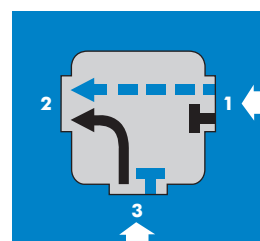
PIPING CHART FOR UNIVERSAL MODELS



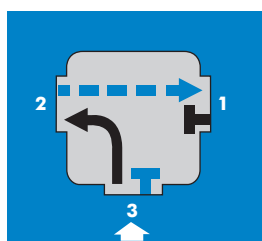
3-Way Normally Closed



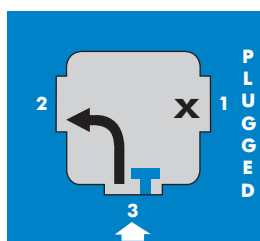
2-Way Normally Closed



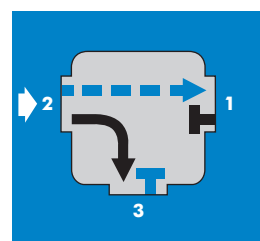
Selector



3-Way Normally Open



2-Way Normally Open



Divertor



Supply

Operator De-Energized 

Operator Energized 

MAC 34 Series

MAC 34 Series - How to order

Valve assembly

Inline valve

34B-XXX - G XX X - X XX

BODY TYPE (STYLE)	PORT SIZE	FUNCTION TYPE	VOLTAGE VDC	LEAD WIRE LENGTH	MANUAL OPERATOR	SOLENOID OPTIONS
A Individual inline	A #10-32 UNF B M5 (Metric)	A Universal 3-way inline B 3-way normally closed only inline	DC 24 =/ 1.8W DD 24 =/ 2.5W DE 24 =/ 3.0W DF 24 =/ 4.0W DJ 12 =/ 1.8W DK 12 =/ 2.5W DM 12 =/ 3.0W DN 12 =/ 4.0W	O No lead wire A 18" / 45 cm B 24" / 60 cm C 36" / 90 cm D 48" / 120 cm E 72" / 180 cm F 96" / 240 cm G 120" / 305 cm H 144" / 366 cm	1 Recessed non locking operator 3 Non locking extended	BA Flying leads BT Flying leads with light KA Plug-in wire assembly KC Plug-in wire assembly with rectifier and light KT Plug-in wire assembly with light

* Connectors available with AC voltages require modification

*Other options: see page 20

Circuit bar®

EBM34A - XX X X - XX

SPACING	CONFIGURATION	PORT SIZE & THREAD TYPE	NUMBER OF STATIONS
00 10.5mm	1 Common inlet & exhaust (12mm profile) Use with B & D port options 2 Common inlet & exhaust (16mm profile) Use with A, C & E port options	A 1/8" NPTF B #10-32 UNF C 1/8" BSPPL D M5 Metric E 1/8" BSPTR	02 Two stations 03 Three stations Etc. ...

* Connectors available with AC voltages require modification

MAC 34 Series

MAC 34 Series - How to order

Valve assembly

Manifold non plug-in valve

34B - X XX - G XX X - X XX

BODY TYPE (STYLE)	PORT SIZE	VOLTAGE VDC	LEAD WIRE LENGTH	MANUAL OPERATOR	SOLENOID OPTIONS
L Base mount body	00 Base mount body only	DC 24 =/ 1.8W	O No lead wire	1 Recessed non locking operator	BA Flying leads
N Base mount body normally closed only		DD 24 =/ 2.5W	A 18" / 45 cm		BT Flying leads with light
		DE 24 =/ 3.0W	B 24" / 60 cm	3 Non locking extended	KA Plug-in wire assembly
		DF 24 =/ 4.0W	C 36" / 90 cm		KC Plug-in wire assembly with rectifier and light
		DJ 12 =/ 1.8W	D 48" / 120 cm		KT Plug-in wire assembly with light
		DK 12 =/ 2.5W	E 72" / 180 cm		
		DM 12 =/ 3.0W	F 96" / 240 cm		
		DN 12 =/ 4.0W	G 120" / 305 cm		
			H 144" / 366 cm		

* Connectors available with AC voltages require modification

*Other options: see page 20

Circuit bar®

EBP34B - XX X X - XX

SPACING	CONFIGURATION	PORT SIZE & THREAD TYPE	NUMBER OF STATIONS
00 10.5mm	1 Side cylinder	B #10-32 UNF	02 Two stations
	2 Bottom cylinder	D M5 Metric	03 Three stations
		F 1/8" O.D. tube fitting	Etc. ...
		G 3/32" O.D. tube fitting	

* Connectors available with AC voltages require modification

MAC 34 Series

MAC 34 Series - How to order

Valve assembly

Manifold plug-in valve

34B - X XX - G XX X - X XX - 9

BODY TYPE (STYLE)	PORT SIZE	VOLTAGE VDC	LEAD WIRE LENGTH	MANUAL OPERATOR	SOLENOID OPTIONS
L Base mount body N Base mount body normally closed only	00 Base mount body only	DC 24 =/ 1.8W DD 24 =/ 2.5W DE 24 =/ 3.0W DF 24 =/ 4.0W DJ 12 =/ 1.8W DK 12 =/ 2.5W DM 12 =/ 3.0W DN 12 =/ 4.0W	0 No lead wire	1 Recessed non locking operator 3 Non locking extended	DC* Base/Manifold plug-in with rectifier & LED DD* Base/Manifold plug-in with rectifier & LED with ground DE* Plug-in with suppression diode DF* Plug-in with suppression diode with ground pin DJ* Plug-in DM* Plug-in with ground pin DT* Plug-in with LED light DU* Plug-in with LED light with ground pin DV* Plug-in with suppression diode with LED light DW* Plug-in with suppression diode with LED light with ground pin

* Connectors available with AC voltages require modification

Circuit bar®

ECDO34B - XX X X X - XX XX

SPACING	CONFIGURATION	STYLE	CYLINDER PORT SIZE	BASE ELECTRICAL	NUMBER OF STATIONS
00 10.5mm * Standard spacing is 10.5mm except for single station add-a-units which are 15mm wide	1 Side cylinder 2 Bottom cylinder 3 Side cylinder with regulator* 4 Bottom cylinder with regulator* 5 Side cylinder with flow control 6 Bottom cylinder port with flow control 7 Bottom cylinder with regulator and flow control* 8 Side cylinder with regulator and flow control*	A Standard bar B Add-on-style bar ¹ C Add-a-unit station ² ¹ Right-hand end plate kit included with bar assembly on "B" add-on style bar ² Add-a-units available in 1, 2, 3 & 4 stations lengths	B #10-32 UNF D M5 Metric	A0 Standard (no light)	02 Two stations 03 Three stations Etc. ...

*Regulator to be ordered separately

Replacement parts & accessories

M-34004-01(*)	Right hand end plate kit	19412-01	Tie rod (10.5mm)
M-34005	Blank station cover plate kit	28415	Isolator disc, inlet & exhaust, installed between add-a-unit stations
N-44002	Flow control needle assembly	24180	Base wire plug-in protector
N44003	Regulator blank plate kit	35048	End plate mounting screw
17012-01-1	O-ring port seal		

Regulator

PR44A - X X X X - 9 (Assembled to bar)

ADJUSTMENT METHOD	CONFIGURATION	GAGE PORT OPTIONS	PRESSURE RANGE
A Manual adjust with knob	0 Regulator	A Standard (no gage port) B Gage port (plugged)* * Option not available with flow controls on circuit bar (gage port not accessible)	A 0 to 6.7 bar B 0 to 4 bar C 0 to 2.7 bar D 0 to 1 bar

MAC 34 Series

MAC 34 Series - Solenoid options

Codification table for voltages / Manual override / Electrical connection

VALVE CODE

G XX X-X XX
1 2 3 4

1. VOLTAGE

G-XX X-X XX	VOLTAGE
AA	120V~/2,5W (requires electrical connector with rectifier)
AC	24V~/4,0W (requires electrical connector with rectifier)
DA	24V=/1,0W
DC	24V=/1,8W
DD	24V=/2,5W
DE	24V=/3,0W
DF	24V=/4,0W
DG	12V=/1,0W
DJ	12V=/1,8W
DK	12V=/2,5W
DM	12V=/3,0W
DN	12V=/4,0W
DR	6V=/1,8W
DS	6V=/3,0W
EB	48V=/1,8W
EC	48V=/3,0W
ED	120V=/2,5W
GD	12V=/0,5W
GE	24V=/0,5W

2. WIRE LENGTH

G-XX X-X XX	WIRE LENGTH
0	No lead wires
A	18" coil leads - 45 cm
B	24" coil leads - 60 cm
C	36" coil leads - 90 cm
D	48" coil leads - 120 cm
E	72" coil leads - 180 cm
F	96" coil leads - 240 cm
G	120" coil leads - 305 cm
H	144" coil leads - 366 cm
1	18" base leads - 45 cm
2	24" base leads - 60 cm
3	36" base leads - 90 cm
4	48" base leads - 120 cm
5	72" base leads - 180 cm
6	96" base leads - 240 cm
7	120" base leads - 305 cm

3. MANUAL OPERATOR

G-XX X-X XX	MANUAL OPERATOR
1	Encastrée – non verrouillable
2	Encastrée – verrouillable
3	Saillante – non verrouillable
4	Saillante – verrouillable

4. ELECTRICAL CONNECTOR FOR INLINE AND NON PLUG-IN VALVES

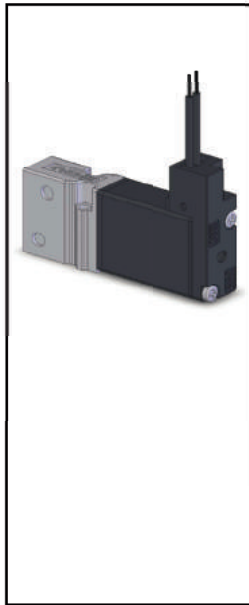
G-XX X-X XX	ELECTRICAL CONNECTION FOR INLINE AND NON PLUG-IN VALVES
BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with light
BD	Flying leads with light and ground wire
BE	Flying leads with suppression diode
BF	Flying leads with suppression diode and ground wire
BG	Flying leads with suppression diode and light
BH	Flying leads with suppression diode, light and ground wire
BN	Flying leads with suppression diode and blocking diode
BP	Flying leads with suppr. diode, blocking diode and ground wire
BR	Flying leads with suppression diode, blocking diode and light
BS	Flying leads w/ suppr. diode, blocking diode, light and ground wire
BT	Flying leads w/ LED light on top
BU	Flying leads w/ LED light on top & ground wire
BV	Flying leads w/ suppression diode plus LED light on top
BW	Flying leads w/ suppr. diode plus LED light on top & ground wire
BX	Flying leads w/ suppr. diode plus blocking diode LED light on top
BY	Flying leads w/ suppr. diode plus blocking diode LED light on top & ground wire
HA	Circuit board plug-in with full wave rectifier & LED (with ground wire)
HD	Circuit board plug-in with full wave rectifier & LED without lead wire assembly (with ground wire)
KA	Solenoid plug-in wire assembly
KB	Solenoid plug-in wire assembly with ground
KC	Solenoid plug-in wire assembly with rectifier and light
KD	Solenoid plug-in wire assembly with rectifier, light and ground
KE	Solenoid plug-in wire assembly with suppression diode
KF	Solenoid plug-in wire assembly with suppr. diode and ground
KJ	Solenoid plug-in housing without wire assembly
KM	Solenoid plug-in housing with ground pin without wire assembly
KN	Sol. plug-in wire assembly with suppr. diode and blocking diode
KP	Sol. plug-in wire assy w/ suppr. diode, blocking diode and ground
KT	Solenoid plug-in wire assembly with light
KU	Solenoid plug-in wire assembly with light and ground
KV	Solenoid plug-in wire assembly with suppression diode and light
KW	Sol. plug-in wire assembly with suppr. diode, light and ground
KX	Sol. plug-in wire assy with suppr. diode, blocking diode and light
KY	Solenoid plug-in wire assembly with suppression diode, blocking diode, light and ground
PA	Pico
TJ	Dual Tabs - Mini Plug-in

4. ELECTRICAL CONNECTOR FOR PLUG-IN VALVES

G-XX X-X XX	ELECTRICAL CONNECTION FOR PLUG-IN (PLUG-IN OPTIONS)
DC*	Base/Manifold plug-in with rectifier & LED
DD*	Base/Manifold plug-in with rectifier & LED with ground
DE*	Plug-in with suppression diode
DF*	Plug-in with suppression diode with ground pin
DJ*	Plug-in
DM*	Plug-in with ground pin
DT*	Plug-in with LED light
DU*	Plug-in with LED light with ground pin
DV*	Plug-in with suppression diode with LED light
DW*	Plug-in with suppression diode with LED light with ground pin

MAC 34 Series

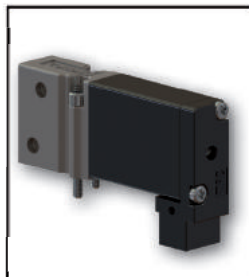
MAC 34 Series - Codification of valve connectors



BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with light
BD	Flying leads with light and ground wire
BE	Flying leads with suppression diode
BF	Flying leads with suppression diode and ground wire
BG	Flying leads with suppression diode and light
BH	Flying leads with suppression diode, light and ground wire
BN	Flying leads with suppression diode and blocking diode
BP	Flying leads with suppr. diode, blocking diode and ground wire
BR	Flying leads with suppression diode, blocking diode and light
BS	Flying leads w/ suppr. diode, blocking diode, light and ground wire
BT	Flying leads w/ LED light on top
BU	Flying leads w/ LED light on top & ground wire
BV	Flying leads w/ suppression diode plus LED light on top
BW	Flying leads w/ suppr. diode plus LED light on top & ground wire
BX	Flying leads w/ suppr. diode plus blocking diode LED light on top
BY	Flying leads w/ suppr. diode plus blocking diode LED light on top & ground wire



KA	Solenoid plug-in wire assembly
KB	Solenoid plug-in wire assembly with ground
KC	Solenoid plug-in wire assembly with rectifier and light
KD	Solenoid plug-in wire assembly with rectifier, light and ground
KE	Solenoid plug-in wire assembly with suppression diode
KF	Solenoid plug-in wire assembly with suppr. diode and ground
KJ	Solenoid plug-in housing without wire assembly
KM	Solenoid plug-in housing with ground pin without wire assembly
KN	Solenoid plug-in wire assembly with suppr. diode and blocking diode
KP	Solenoid plug-in wire assy w/ suppr. diode, blocking diode and ground
KT	Solenoid plug-in wire assembly with light
KU	Solenoid plug-in wire assembly with light and ground
KV	Solenoid plug-in wire assembly with suppression diode and light
KW	Solenoid plug-in wire assembly with suppr. diode, light and ground
KX	Solenoid plug-in wire assy with suppr. diode, blocking diode and light

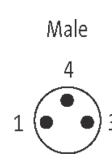


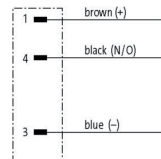
DC*	Base/Manifold plug-in with rectifier & LED
DD*	Base/Manifold plug-in with rectifier & LED with ground
DE*	Plug-in with suppression diode
DF*	Plug-in with suppression diode with ground pin
DJ*	Plug-in
DM*	Plug-in with ground pin
DT*	Plug-in with LED light
DU*	Plug-in with LED light with ground pin
DV*	Plug-in with suppression diode with LED light
DW*	Plug-in with suppression diode with LED light with ground pin



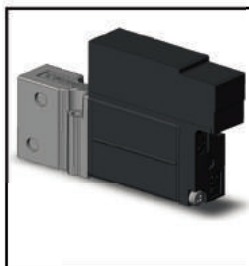
PA	Pico
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Male

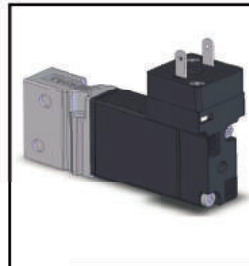




Connect Female connector to pins 1 and 4.
Use brown and black wires

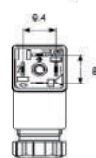


HA	Circuit board plug-in with full wave rectifier & LED (with ground wire)
HD	Circuit board plug-in with full wave rectifier & LED without lead wire assembly (with ground wire)



TJ	Dual Tabs - Mini Plug-in
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MICRO DIN 43650-Industrial Standard C
9.4mm Pin Spacing



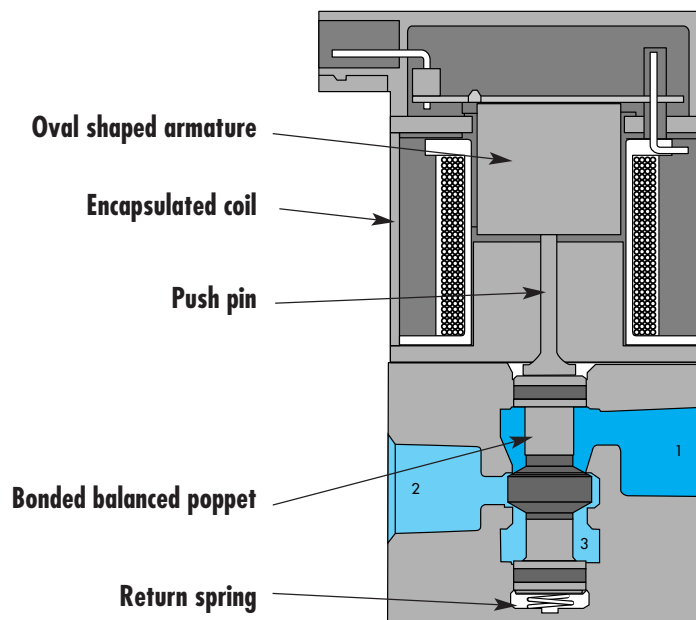
Direct solenoid and solenoid pilot operated valves

Individual mounting

Inline	
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Manifold mounting

Stacking	Manifold base "plug-in"	Manifold base "plug-in" with pressure regulators	
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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
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 with rectifier

* Other options available, see page options.

Note : - AC voltage requires connector with rectifier.

- With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.

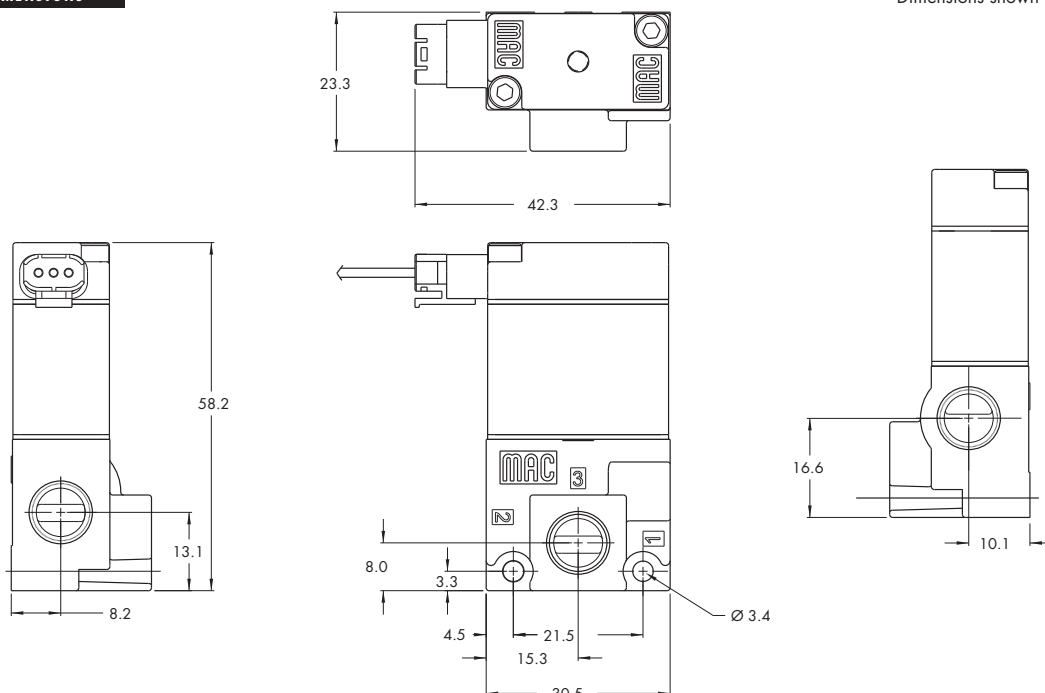
TECHNICAL DATA

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 Nl/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)



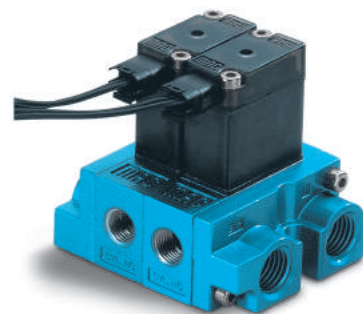


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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.



HOW TO ORDER

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

* Other options available, see page options.

Note : - AC voltage requires connector with rectifier.

- 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

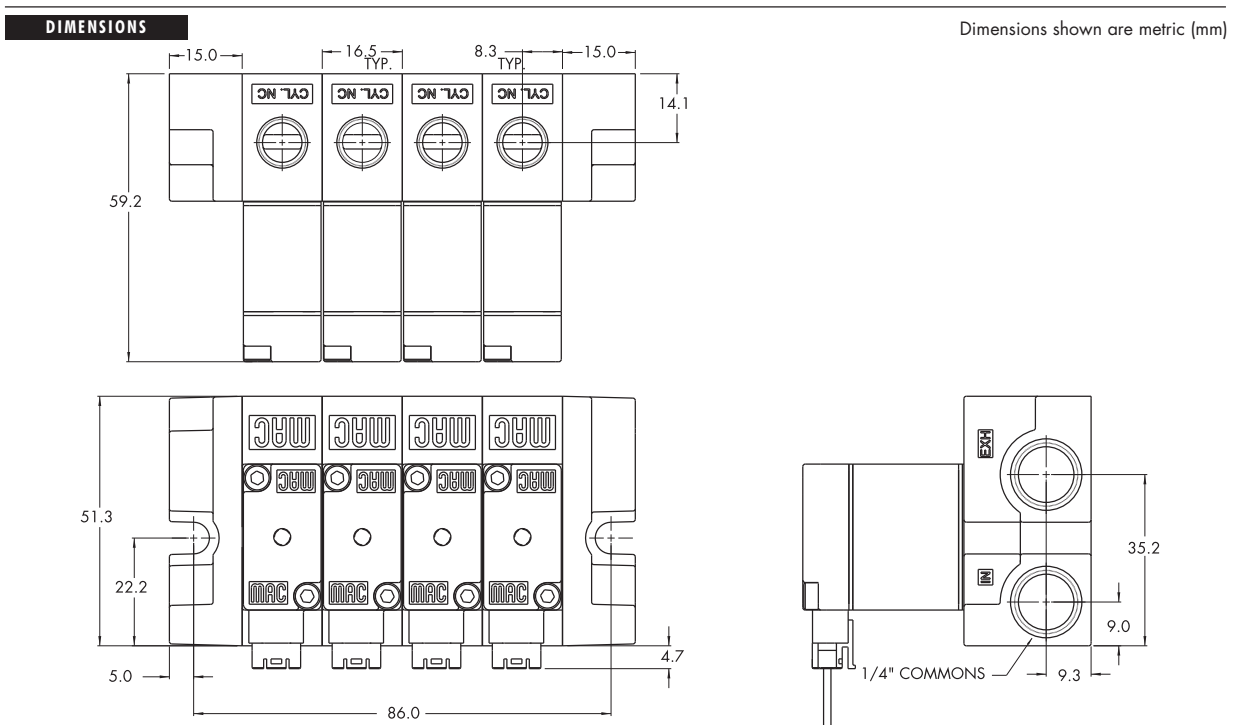


100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

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



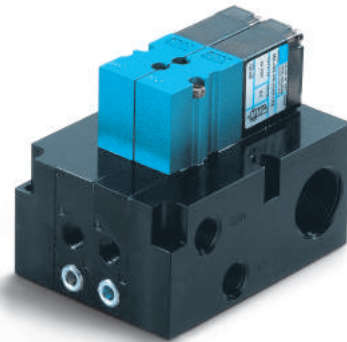


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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.



HOW TO ORDER

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

SOLENOID OPERATOR >

J **xx** P-**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		
DD 12V~/2,4W		

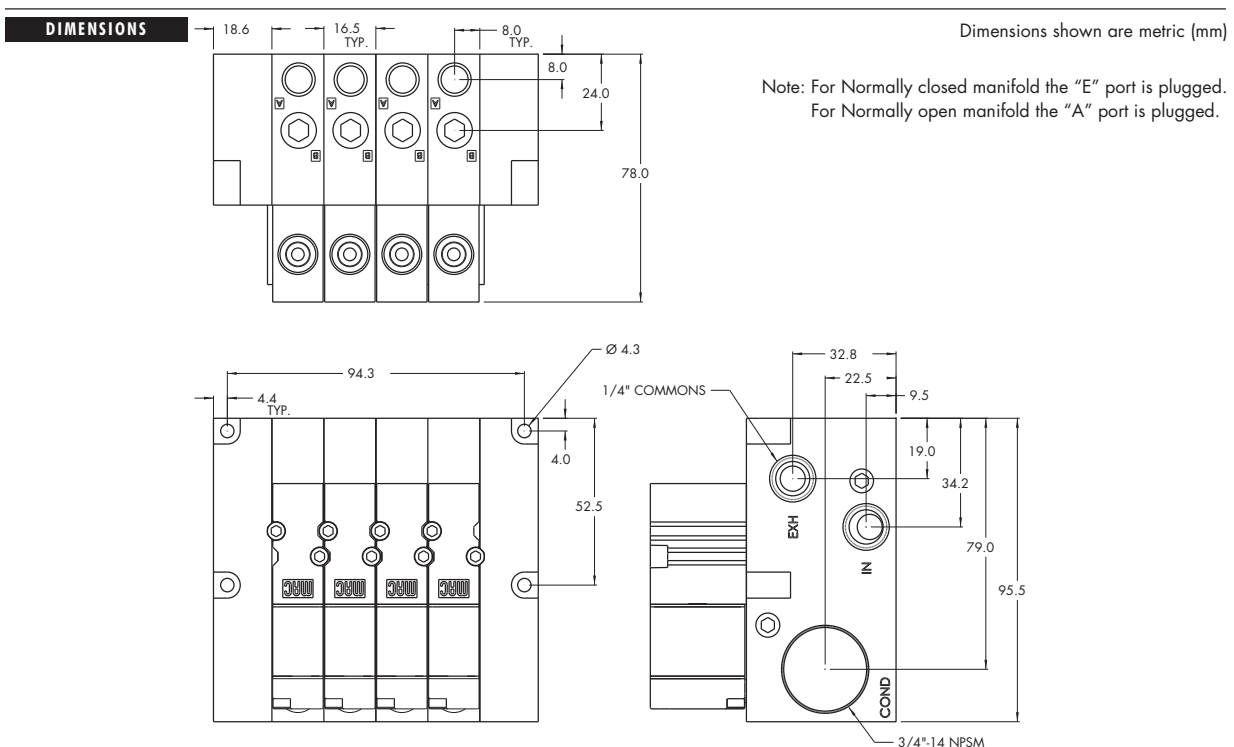
* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

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

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



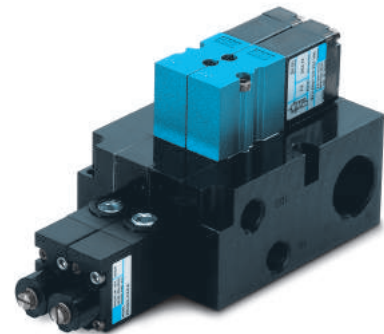


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
3/2	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.



HOW TO ORDER

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

SOLENOID OPERATOR >

J xx P-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		
DD 12V~/2,4W		

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

OPTIONS

36A-JSC-AG-Jxx P-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

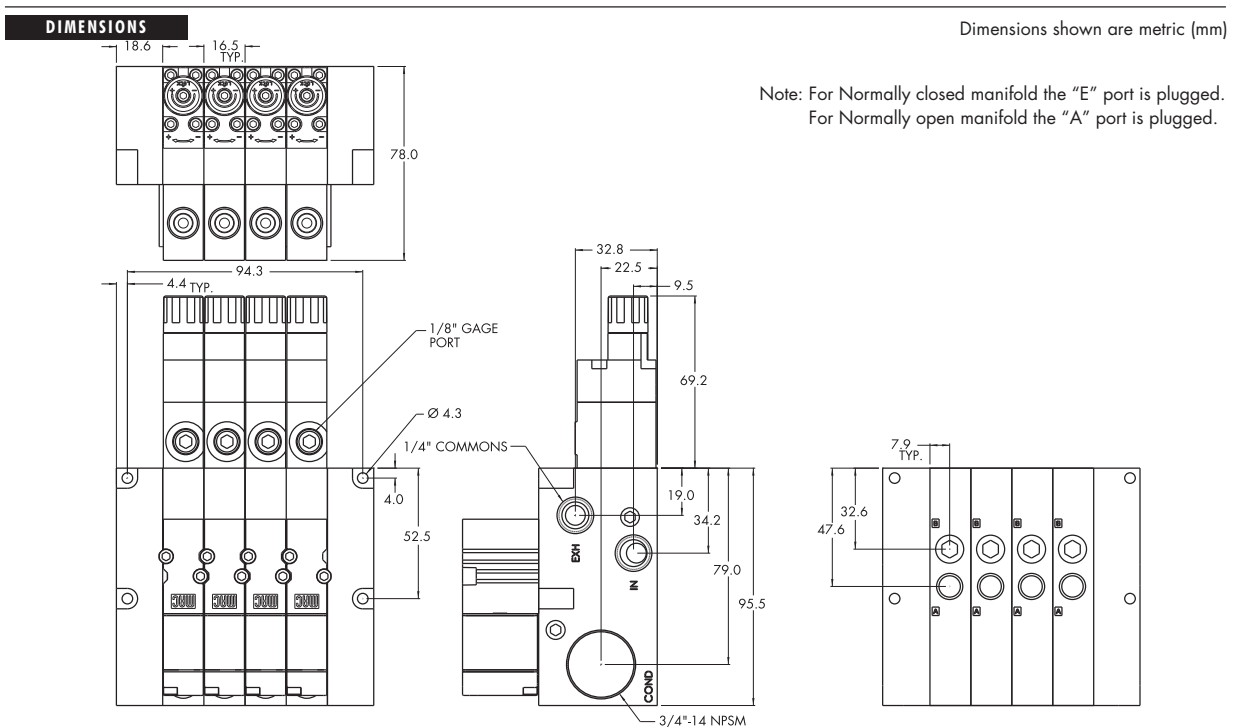
Note : All manifold bases are only available with a bottom cylinder port.

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



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

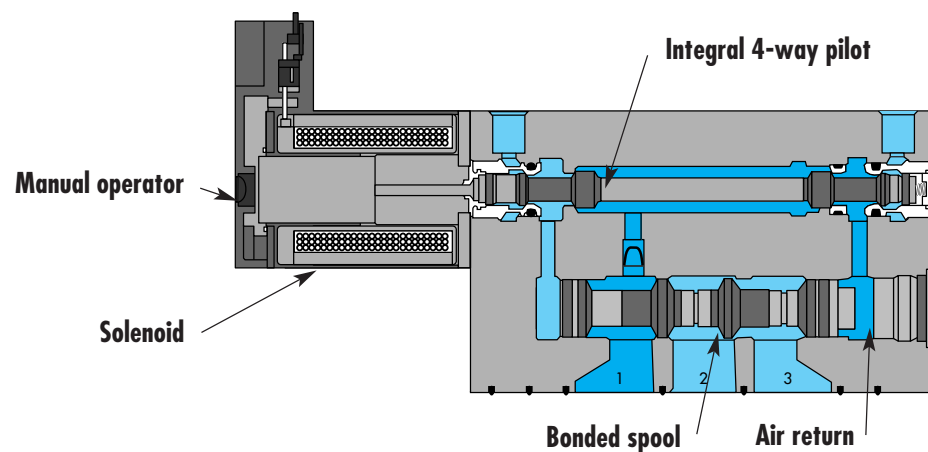
Direct solenoid and solenoid pilot operated valves

Individual mounting

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

Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"	



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.

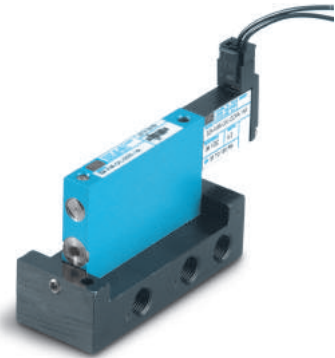


Direct solenoid and solenoid pilot operated valves

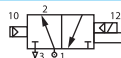
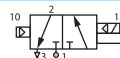
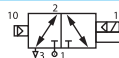
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC	G1/8"	400 NI/min	Sub-base non "plug-in"

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	32B-BMA-000-Gxxx-xxx	32B-AMA-000-Gxxx-xxx	
	External	32B-BMB-000-Gxxx-xxx	32B-AMB-000-Gxxx-xxx	32B-GMB-000-Gxxx-xxx
G1/8"	Internal	32B-BMA-HAL-Gxxx-xxx	32B-AMA-HAL-Gxxx-xxx	
	External	32B-BMB-HAM-Gxxx-xxx	32B-AMB-HAM-Gxxx-xxx	32B-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		GA MAC JAC Solenoid plug-in
DD 24 V~/2,5W			GB MAC JAC Solenoid plug-in with diode
DF 24 V=/4,0W			GC MAC JAC Solenoid plug-in with MOV
			GD MAC JAC Solenoid plug-in with LED
			GE MAC JAC Solenoid plug-in with diode and LED
			GF MAC JAC Solenoid plug-in with MOV and LED
			GG MAC JAC Solenoid plug-in with rectifier
			GH MAC JAC Solenoid plug-in with rectifier and LED
			KA Mini connector
			KD Mini connector with rectifier light and ground
			KT Mini connector with light

Note : AC voltage requires connector with rectifier.

* Other options available, see page **options**.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Pilot/Base Configuration :

32B-x**M**-x**A**-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)

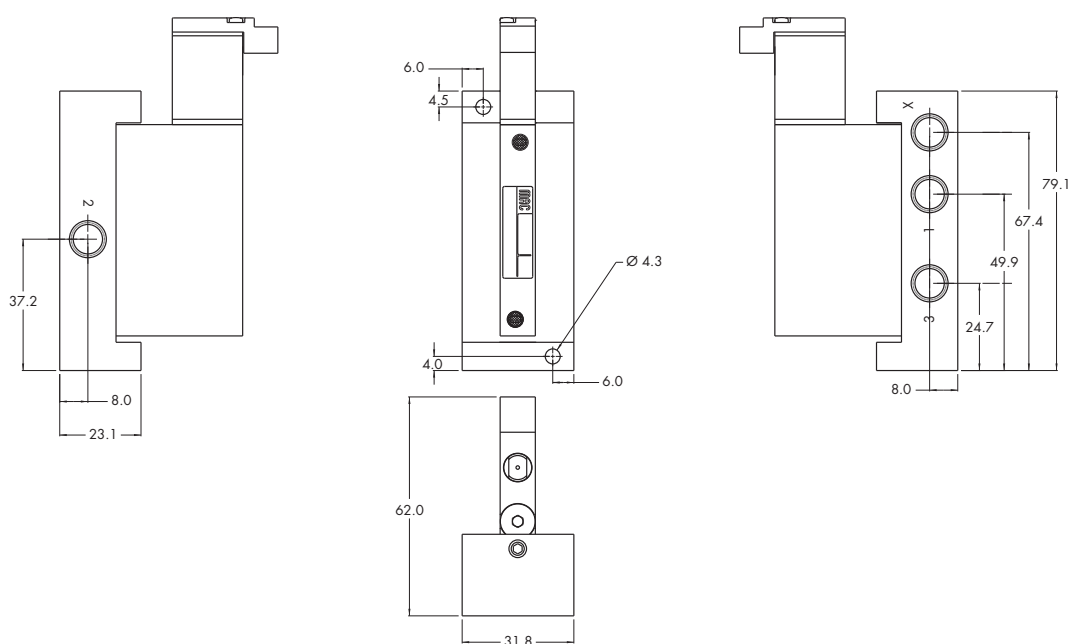
TECHNICAL DATA

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, $\Delta P=1\text{bar}$) :	G1/8" : 400 NL/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)



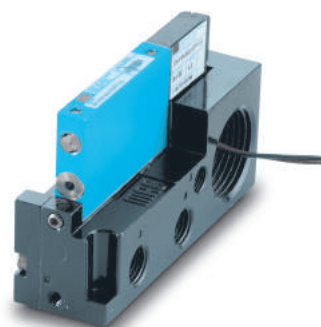


Direct solenoid and solenoid pilot operated valves

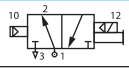
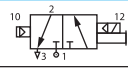
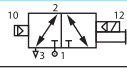
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC	M5, M7	400 NI/min	Sub-base "plug-in"

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.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
				
Valve less base	Internal	32B-BMA-000-GxxP-xxx	32B-AMA-000-GxxP-xxx	
	External	32B-BMB-000-GxxP-xxx	32B-AMB-000-GxxP-xxx	32B-GMB-000-GxxP-xxx
M5	Internal	32B-BMA-GAA-GxxP-xxx	32B-AMA-GAA-GxxP-xxx	
	External	32B-BMB-GAB-GxxP-xxx	32B-AMB-GAB-GxxP-xxx	32B-GMB-GAB-GxxP-xxx
M7	Internal	32B-BMA-LAA-GxxP-xxx	32B-AMA-LAA-GxxP-xxx	
	External	32B-BMB-LAB-GxxP-xxx	32B-AMB-LAB-GxxP-xxx	32B-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	SA Base plug-in
DA 24 V~/1,0W	2 Locking	SJ Base plug-in with light
DC 24 V=/1,8W		SS Base plug-in with rectifier & light & ground
DD 24 V=/2,5W		
DF 24 V=/4,0W		

Note : AC voltage requires connector with rectifier.

* Other options available, see page options.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Pilot/Base Configuration :

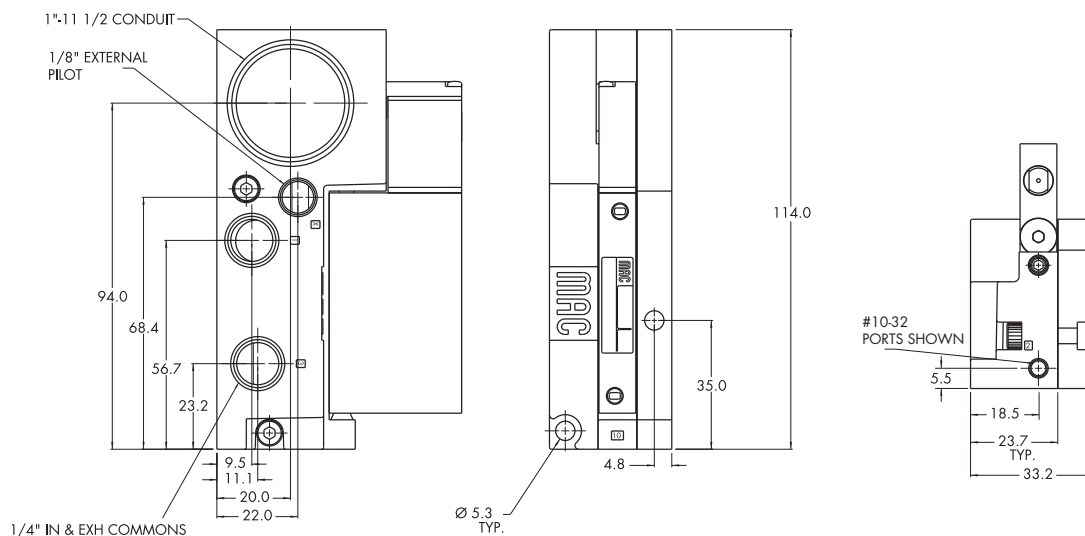
32B-x**M**-x**A**-x**G**xx P-xxx

- 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, $\Delta P=1\text{bar}$) :	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
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	32B-BMA-000-Gxxx-xxx	32B-AMA-000-Gxxx-xxx	
	External	32B-BMB-000-Gxxx-xxx	32B-AMB-000-Gxxx-xxx	32B-GMB-000-Gxxx-xxx
M5	Internal	32B-BMA-GJL-Gxxx-xxx	32B-AMA-GJL-Gxxx-xxx	
	External	32B-BMB-GJM-Gxxx-xxx	32B-AMB-GJM-Gxxx-xxx	32B-GMB-GJM-Gxxx-xxx
M7	Internal	32B-BMA-LJL-Gxxx-xxx	32B-AMA-LJL-Gxxx-xxx	
	External	32B-BMB-LJM-Gxxx-xxx	32B-AMB-LJM-Gxxx-xxx	32B-GMB-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		GA MAC JAC Solenoid plug-in
DD 24 V~/2,5W			GB MAC JAC Solenoid plug-in with diode
DF 24 V=/4,0W			GC MAC JAC Solenoid plug-in with MOV
			GD MAC JAC Solenoid plug-in with LED
			GE MAC JAC Solenoid plug-in with diode and LED
			GF MAC JAC Solenoid plug-in with MOV and LED
			GG MAC JAC Solenoid plug-in with rectifier
			GH MAC JAC Solenoid plug-in with rectifier and LED
			KA Mini connector
			KD Mini connector with rectifier light and ground
			KT Mini connector with light

Note : AC voltage requires connector with rectifier.

* Other options available, see page **options**.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Base only :

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

Base Configuration :

32B-x**M**-x**J**-x**G**xxx-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)

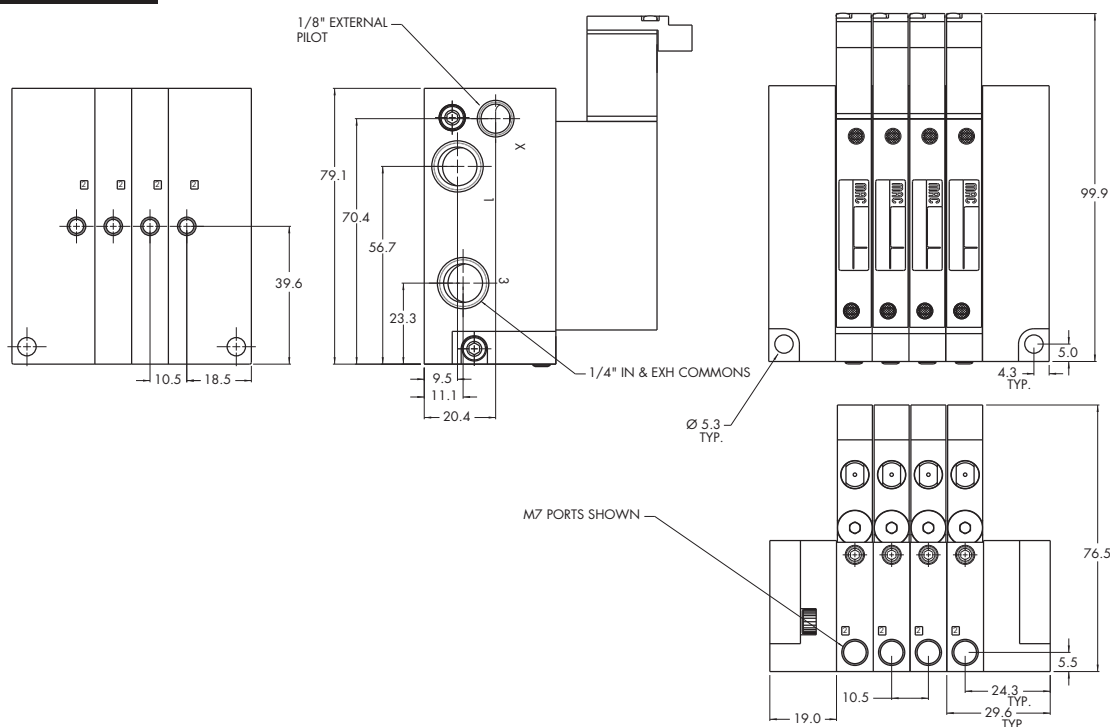
TECHNICAL DATA

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)



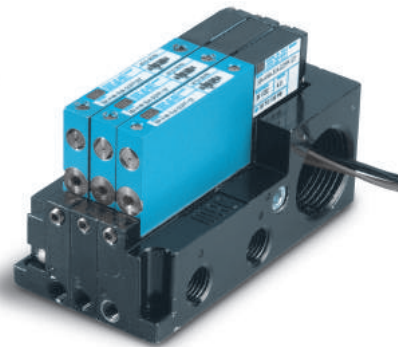


Direct solenoid and solenoid pilot operated valves

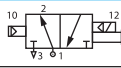
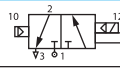
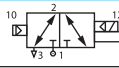
Function	Port size	Flow [Max]	Manifold mounting
3/2 NO-NC	M5, M7	400 NI/min	Manifold base "plug-in"

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.



HOW TO ORDER

Port size	Pilot air	NO valve	NC valve	Universal valve
				
Valve less base	Internal	32B-BMA-000-GxxP-xxx	32B-AMA-000-GxxP-xxx	
	External	32B-BMB-000-GxxP-xxx	32B-AMB-000-GxxP-xxx	32B-GMB-000-GxxP-xxx
M5	Internal	32B-BMA-GJA-GxxP-xxx	32B-AMA-GJA-GxxP-xxx	
	External	32B-BMB-GJB-GxxP-xxx	32B-AMB-GJB-GxxP-xxx	32B-GMB-GJB-GxxP-xxx
M7	Internal	32B-BMA-LJA-GxxP-xxx	32B-AMA-LJA-GxxP-xxx	
	External	32B-BMB-LJB-GxxP-xxx	32B-AMB-LJB-GxxP-xxx	32B-GMB-LJB-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	SA Base plug-in
DA 24 V~/1,0W	2 Locking	SJ Base plug-in with light
DC 24 V=/1,8W		SS Base plug-in with rectifier & light & ground
DD 24 V=/2,5W		
DF 24 V=/4,0W		

Note : AC voltage requires connector with rectifier.

* Other options available, see page options.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Base only :

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

Base Configuration :

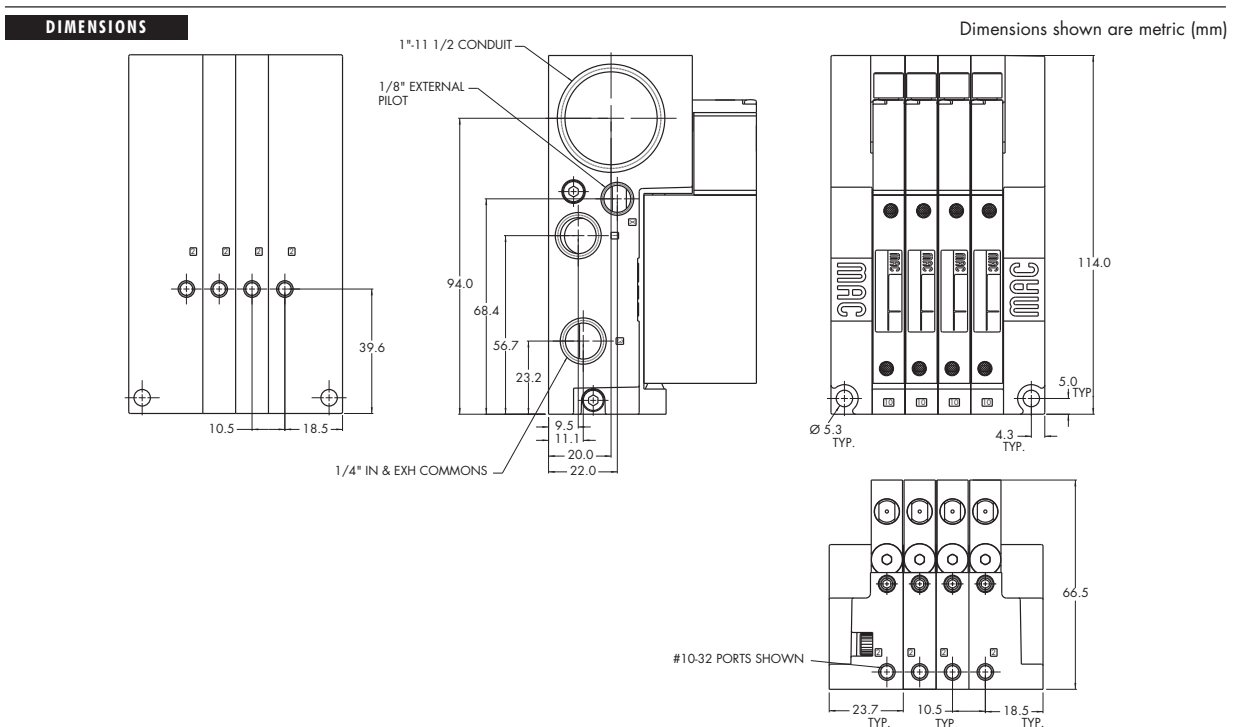
32B-xxx-Jx-Gxx P-xxx

- 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



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤

G XX X-X XX
1 2 3 4

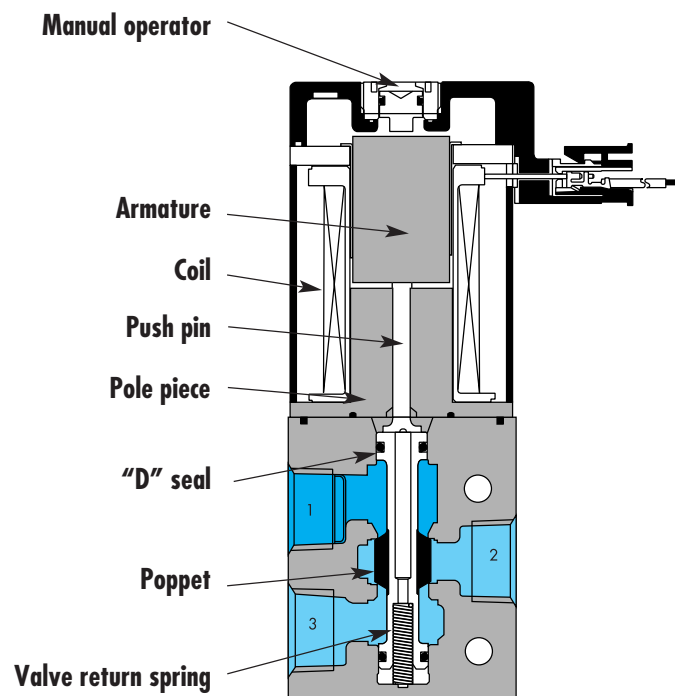
1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V~/1,0W	
DC	24V~/1,8W	
DD	24V~/2,5W	
DE	24V~/3,0W	
DF	24V~/4,0W	
DG	12V~/1,0W	
DJ	12V~/1,8W	
DK	12V~/2,5W	
DM	12V~/3,0W	
DN	12V~/4,0W	
DR	6V~/1,8W	
DS	6V~/3,0W	
EB	48V~/1,8W	
EC	48V~/3,0W	
ED	120V~/2,5W	
GD	12V~/0,5W	34 series only
GE	24V~/0,5W	34 series only
2. WIRE LENGTH		
G-XX X-X XX	WIRE LENGTH	
0	No lead wires (used only with "KJ" & "KM" connectors)	
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	
G	305 cm – 120" coil leads	
H	366 cm – 144" coil leads	
1	45 cm – 18" base leads	
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	

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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
ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

Direct solenoid and solenoid pilot operated valves

Individual mounting

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



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


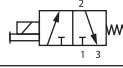
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC	G1/8" - G1/4"	500 NI/min	Inline

OPERATIONAL BENEFITS

1. Balanced poppet equals consistent high shifting forces.
2. Valve shifting forces are consistent and independent of pressure fluctuations.
3. High solenoid and return spring forces ensure high speed and precise repeatability.
4. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
5. Constant high flow maintained throughout the pressure range.
6. Exhaust contaminants are isolated from the solenoid.
7. Full flow exhaust.
8. 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
			MT Plug-in wire assembly with rectifier and light

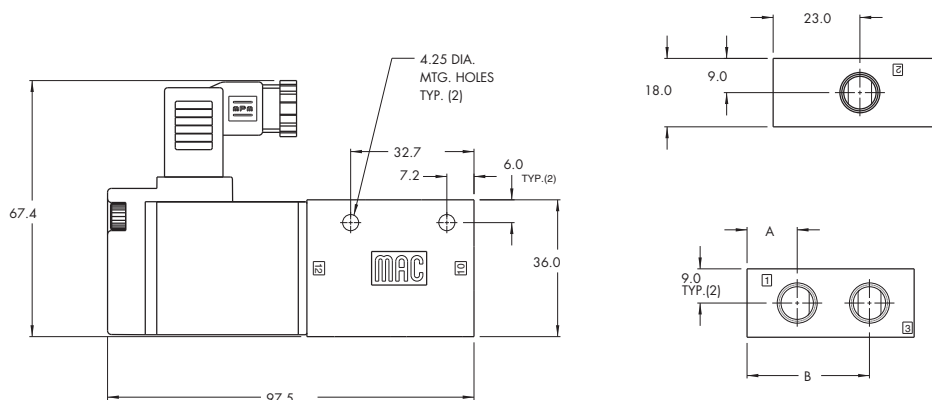
Note : AC voltage requires connector with rectifier.

* Other options available, see page **options**.

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

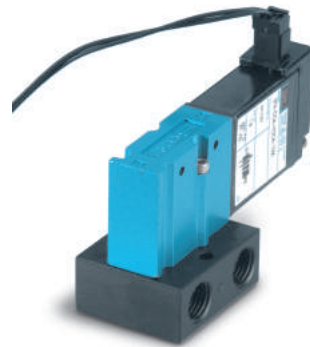


Direct solenoid and solenoid pilot operated valves


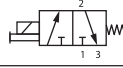
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC	G1/8" - G1/4"	500 NI/min	Sub-base non plug-in

OPERATIONAL BENEFITS

1. Balanced poppet equals consistent high shifting forces.
2. Valve shifting forces are consistent and independent of pressure fluctuations.
3. High solenoid and return spring forces ensure high speed and precise repeatability.
4. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
5. Constant high flow maintained throughout the pressure range.
6. Exhaust contaminants are isolated from the solenoid.
7. Full flow exhaust.
8. 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.

* Other options available, see page **options**.

OPTIONS

Base only :

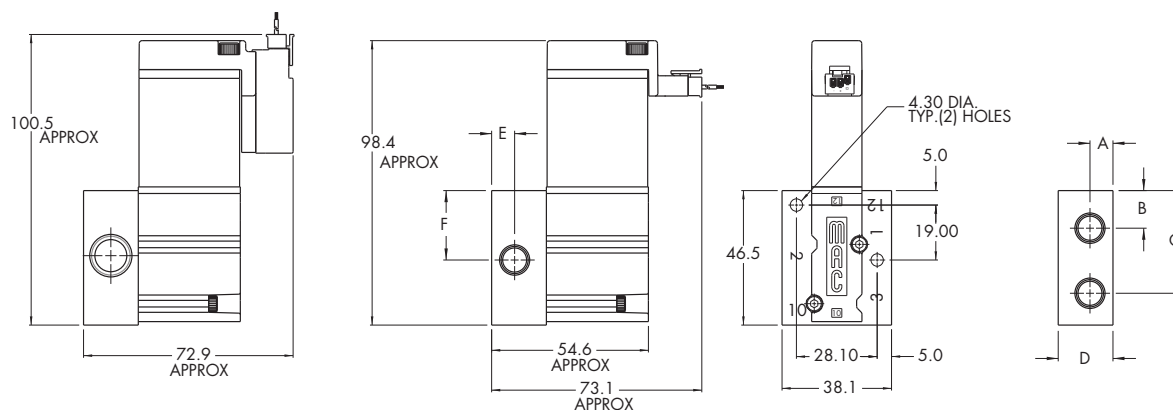
37A-0CA (1/8")

37A-0DA (1/4")

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

Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "NON PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure
No gauge port	PR37A-FAAA
With gauge Port (plugged)	PR37A-FABA

Note: Regulating pressure range for above models is 0 to 8 bar
For other ranges, see technical data page.

OPTIONS

Adjustment :

PR37A-**Fxxx**

- B** for slotted stem
- K** for slotted stem with locknut

Pressure range :

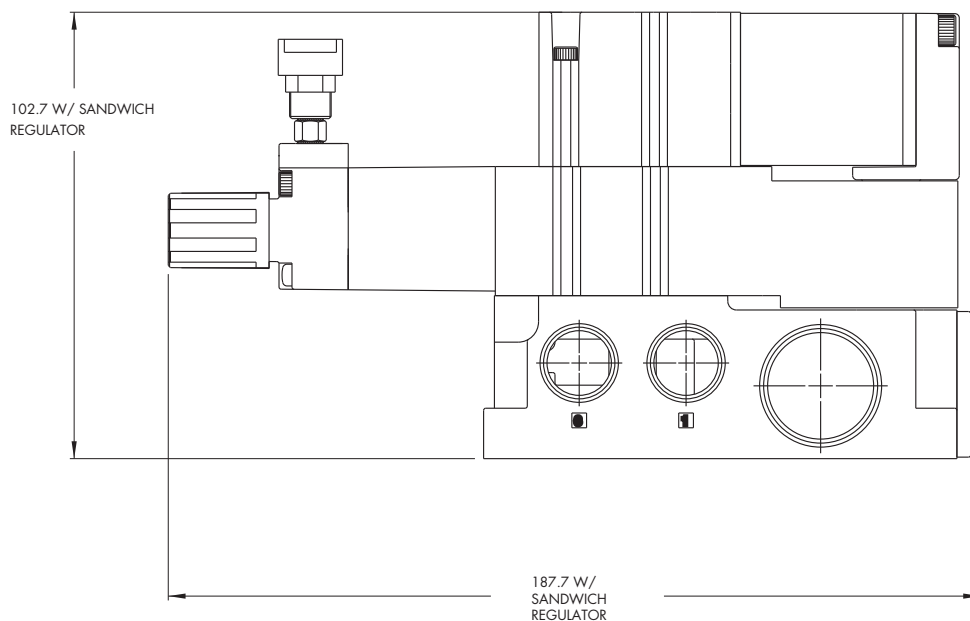
PR37A-**xxxA**

- B** for 0 to 5,3 bar
- C** for 0 to 2 bar

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar)	400 NL/min (Cv 0.4)

- Spare parts :
- Pressure regulator (less sandwich block) : PR37A-G0AA (knob), PR37A-C0AA (slotted stem), PR37A-L0AA (slotted stem with locknut)
 - Gauges : 24177-160 (0 to 10,7 bar, 23 mm)
24177-100 (0 to 6,7 bar, 23 mm)
24177-060 (0 to 4 bar, 23 mm)

DIMENSIONS Dimensions shown are metric (mm)



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

H XX X-X XX
1 2 3 4

1. VOLTAGE		H-XX X-X XX	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)	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	FA with full wave rectifier
DL	120 V=/6,3 W	FL	FA with full wave rectifier & ground wire
2. WIRE LENGTH		*FN	FA with suppression diode plus blocking diode
H-XX X-X XX	WIRE LENGTH	*FP	FA with suppression diode plus blocking diode & ground wire
0	No lead wire (use with "MJ", "MM" & "K" style connectors)	*FR	FA with suppression diode plus blocking diode plus light
A	45 cm = 18"	*FS	FA with suppression diode plus blocking diode & light & ground wire
B	60 cm = 24"	FT	FA with full wave rectifier plus light
C	90 cm = 36"	FU	FA with full wave rectifier plus light & ground wire
D	120 cm = 48"	MA	Solenoid plug-in wire assembly
E	180 cm = 72"	MB	MA with ground wire
F	240 cm = 96"	MC	MA with light
G	305 cm = 120"	MD	MA with light & ground wire
H	366 cm = 144"	ME	MA with suppression diode
3. MANUAL OPERATOR		MF	MA with suppression diode & ground wire
H-XX X-X XX	MANUAL OPERATOR	MG	MA with suppression diode plus light
0	No operator	MH	MA with suppression diode plus light & ground wire
1	Non-locking recessed	MK	MA with full wave rectifier
2	Locking recessed	ML	MA with full wave rectifier & ground wire
3	Non-locking extended	*MN	MA with suppression diode plus blocking diode
4	Locking extended	*MP	MA with suppression diode plus blocking diode & ground wire
4. ELECTRICAL CONNECTION		*MR	MA with suppression diode plus blocking diode & light
H-XX X-X XX	ELECTRICAL CONNECTION	*MS	MA with suppression diode plus blocking diode & light & ground wire
BA	Flying leads	MT	MA with full wave rectifier plus light
BB	BA with ground wire	MU	MA with full wave rectifier plus light & ground wire
BC	BA with light	MJ	Plug-in housing without wire assembly ('MA' option without wire assembly)
BD	BA with light & ground wire	MM	Plug-in housing without wire assembly ('MB' option without wire assembly)
BE	BA with suppression diode	KA	Mini square connector
BF	BA with suppression diode & ground wire	KB	KA with suppression diode
BG	BA with suppression diode plus light	KC	KA with M.O.V.
BH	BA with suppression diode plus light & ground wire	KD	KA with light
*BN	BA with suppression diode plus blocking diode	KE	KA with light & suppression diode
*BP	BA with suppression diode plus blocking diode & ground wire	KF	KA with light & M.O.V.
*BR	BA with suppression diode plus blocking diode & light	KJ	Mini square connector – male only
*BS	BA with suppression diode plus blocking diode & light & ground wire	KK	KJ with suppression diode
BK	BA with full wave rectifier	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	

Note: Blocking diode is located in the lead wire

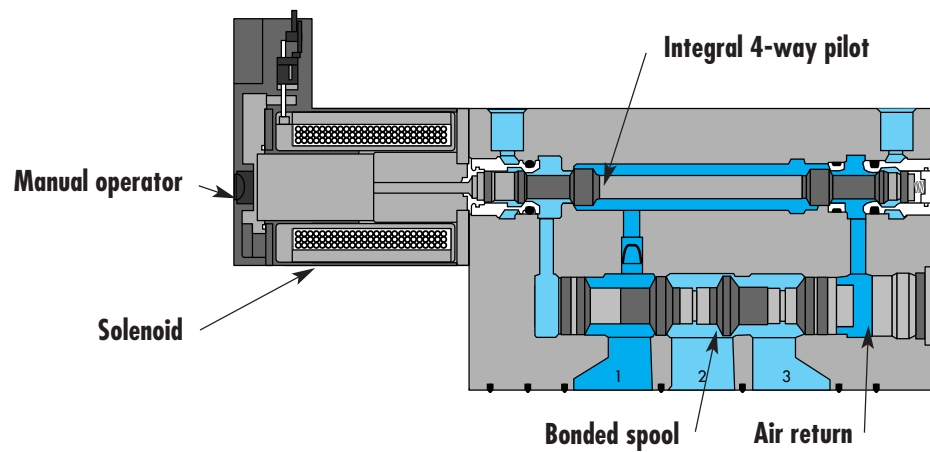
Direct solenoid and solenoid pilot operated valves

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	
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Manifold mounting

Manifold base "plug-in"	
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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.

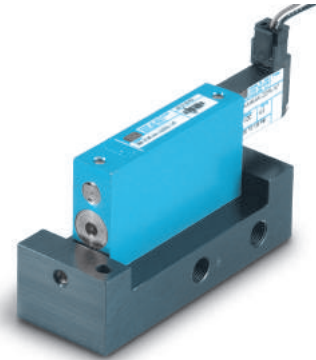


Direct solenoid and solenoid pilot operated valves

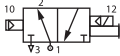

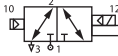
Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC	G1/8"	1200 NI/min	Sub-base non "plug-in"

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	38B-BMA-000-Gxxx-xxx	38B-AMA-000-Gxxx-xxx	
	External	38B-BMB-000-Gxxx-xxx	38B-AMB-000-Gxxx-xxx	38B-GMB-000-Gxxx-xxx
G1/8"	Internal	38B-BMA-BAL-Gxxx-xxx	38B-AMA-BAL-Gxxx-xxx	
	External	38B-BMB-BAM-Gxxx-xxx	38B-AMB-BAM-Gxxx-xxx	38B-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		GA MAC JAC Solenoid plug-in
DD 24 V~/2,5W			GB MAC JAC Solenoid plug-in with diode
DF 24 V~/4,0W			GC MAC JAC Solenoid plug-in with MOV
			GD MAC JAC Solenoid plug-in with LED
			GE MAC JAC Solenoid plug-in with diode and LED
			GF MAC JAC Solenoid plug-in with MOV and LED
			GG MAC JAC Solenoid plug-in with rectifier
			GH MAC JAC Solenoid plug-in with rectifier and LED
			KA Mini connector
			KD Mini connector with rectifier light and ground
			KT Mini connector with light

Note : AC voltage requires connector with rectifier.

* Other options available, see page **options**.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Pilot/Base Configuration :

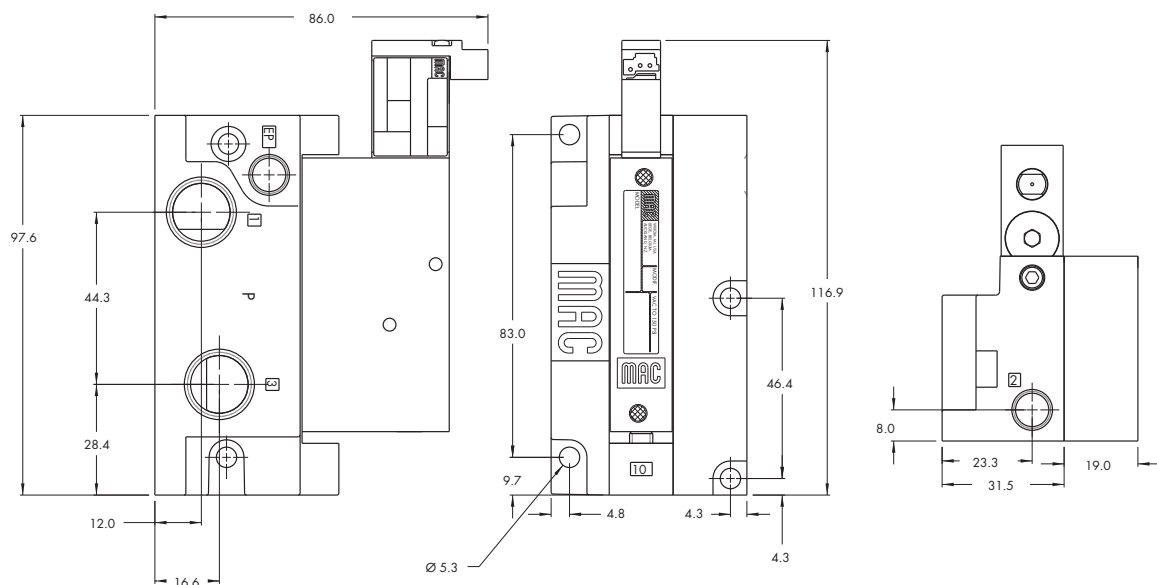
38B-x**M**-x**A**-Gxxx-xxx

- 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, $\Delta P=1\text{bar}$) :	G1/8" bottom port: 1200 NL/min (Cv 1,2) - G1/8" side port: 1000 NL/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)



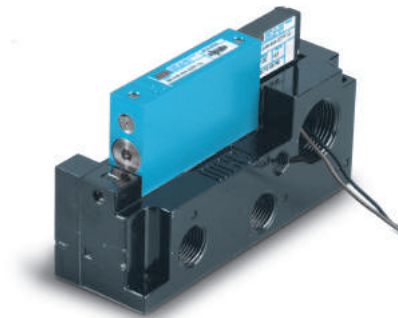


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual mounting
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
G1/8"				
	Internal	38B-BMA-000-GxxP-xxx	38B-AMA-000-GxxP-xxx	
	External	38B-BMB-000-GxxP-xxx	38B-AMB-000-GxxP-xxx	38B-GMB-000-GxxP-xxx
	Internal	38B-BMA-BAA-GxxP-xxx	38B-AMA-BAA-GxxP-xxx	
	External	38B-BMB-BAB-GxxP-xxx	38B-AMB-BAB-GxxP-xxx	38B-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	SA Base plug-in
DA 24 V~/1,0W	2 Locking	SJ Base plug-in with light
DC 24 V~/1,8W		SS Base plug-in with rectifier & light & ground
DD 24 V~/2,5W		
DF 24 V~/4,0W		

Note : AC voltage requires connector with rectifier.

* Other options available, see page options.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

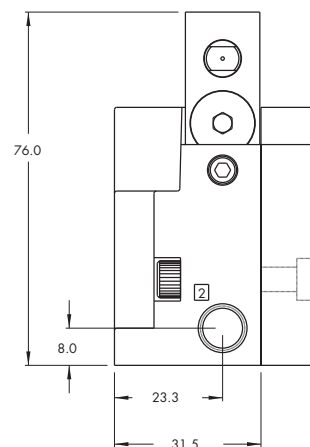
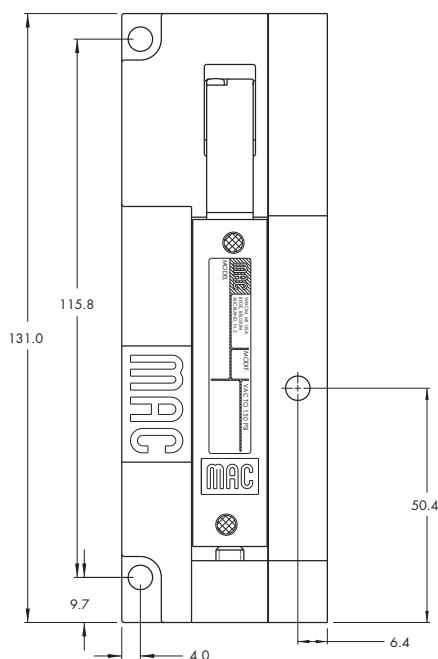
Pilot/Base Configuration :

38B-x M -x A -G xx P- 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 NL/min (Cv 1,2) - G1/8" side port : 1000 NL/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)



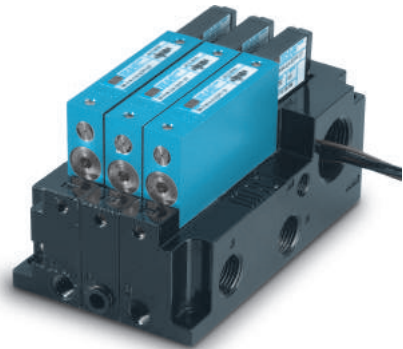


Direct solenoid and solenoid pilot operated valves

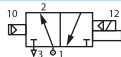
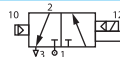
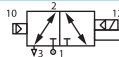
Function	Port size	Flow [Max]	Manifold mounting
3/2 NO-NC	G1/8"	1200 NI/min	Manifold base "plug-in"

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	38B-BMA-000-GxxP-xxx	38B-AMA-000-GxxP-xxx	
	External	38B-BMB-000-GxxP-xxx	38B-AMB-000-GxxP-xxx	38B-GMB-000-GxxP-xxx
G1/8"	Internal	38B-BMA-BJA-GxxP-xxx	38B-AMA-BJA-GxxP-xxx	
	External	38B-BMB-BJB-GxxP-xxx	38B-AMB-BJB-GxxP-xxx	38B-GMB-BJB-GxxP-xxx

Note : Above codes are for side port.

STANDARD SOLENOID OPERATOR ➤

G **xx** P-**xxx** *

Voltage	Manual operator	Electrical connection
AA 120 V~/2,5W	1 Non-locking	SA Base plug-in
DA 24 V~/1,0W	2 Locking	SJ Base plug-in with light
DC 24 V=/1,8W		SS Base plug-in with rectifier & light & ground
DD 24 V=/2,5W		
DF 24 V=/4,0W		

Note : AC voltage requires connector with rectifier.

* Other options available, see page **options**.

Washdown capability is possible for the "G" type electrical connector. Consult factory for ordering information.

OPTIONS

Base only :

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

Base Configuration :

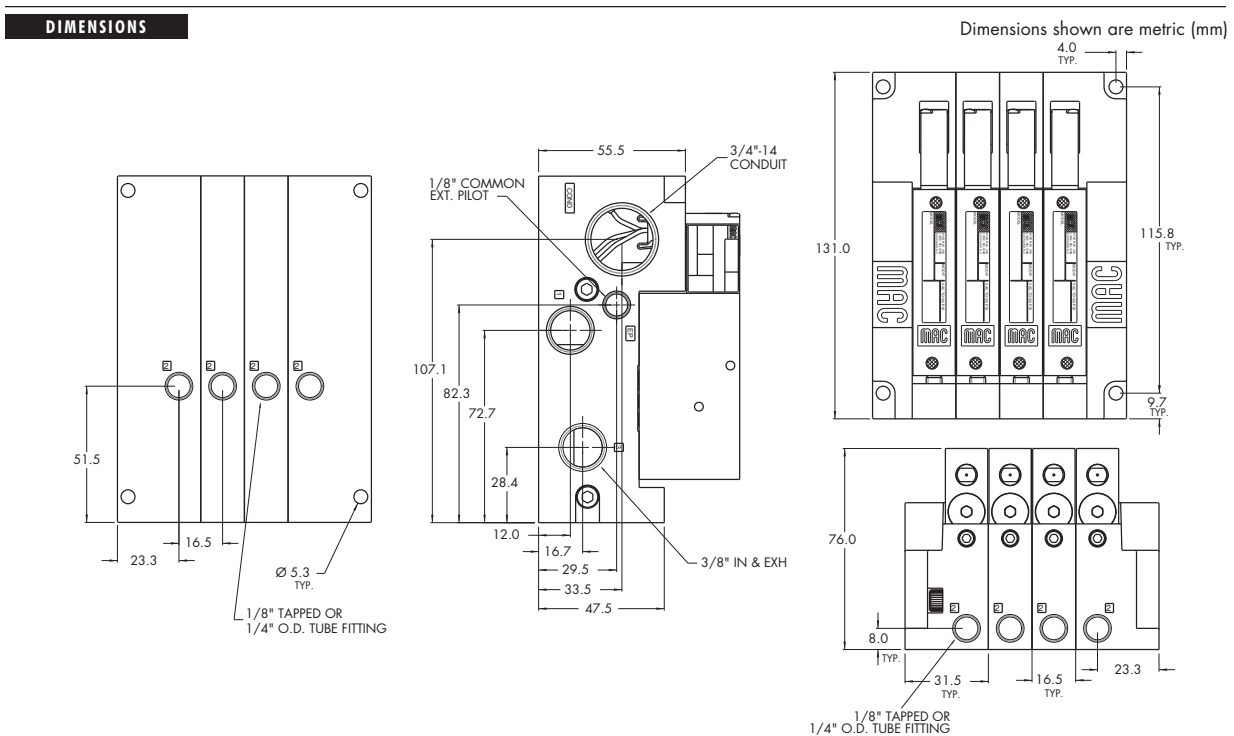
38B-xxx-Jx-Gxx P-xxx

- 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 :	6,0 mm
Flow (at 6 bar, ΔP=1bar) :	G1/8" bottom port: 1200 NL/min (Cv 1,2) - G1/8" side port: 1000 NL/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



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤

G XX X-X XX
1 2 3 4

1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V~/1,0W	
DC	24V~/1,8W	
DD	24V~/2,5W	
DE	24V~/3,0W	
DF	24V~/4,0W	
DG	12V~/1,0W	
DJ	12V~/1,8W	
DK	12V~/2,5W	
DM	12V~/3,0W	
DN	12V~/4,0W	
DR	6V~/1,8W	
DS	6V~/3,0W	
EB	48V~/1,8W	
EC	48V~/3,0W	
ED	120V~/2,5W	
GD	12V~/0,5W	34 series only
GE	24V~/0,5W	34 series only
2. WIRE LENGTH		
G-XX X-X XX	WIRE LENGTH	
0	No lead wires (used only with "KJ" & "KM" connectors)	
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	
G	305 cm – 120" coil leads	
H	366 cm – 144" coil leads	
1	45 cm – 18" base leads	
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	

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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
ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

MAC

52 Series

2/2-way & 3/2-way remote & solenoid pilot operated (5-way pilot)

Available configurations:	Individual inline, individual base mounted or manifold mounted bodies
Port sizes:	1/8", 1/4" ports
Flow:	Up to 1500 NI/min (1.5 Cv)
Pressure range:	Vacuum to 8 bar
Function:	3/2 (single & double operator), 3/2 (normally open & normally closed)
Operation:	Electrical / Remote air
Pilot valve:	DM / DP / DU / GM
Accessories:	Circuit bar / Flow controls



Table of contents

- *MAC 52 Series - Solenoid pilot operated valve*
- *MAC 52 Series - Remote air valve*
- *MAC 52 Series - Spool configurations*
- *MAC 52 Series - How to order*
- *MAC 52 Series - References for DM pilot valve*
- *MAC 52 Series - References for GM pilot valve*
- *MAC 52 Series - Codification electrical connection DM pilot valve (coil / connector configurations)*
- *MAC 52 Series - Codification electrical connection GM pilot valve (coil / connector configurations)*
- *MAC 52 Series - Dimensions*
- *MAC 52 Series - Repair kits (main ones)*
- *MAC 52 Series - Circuit bar®*

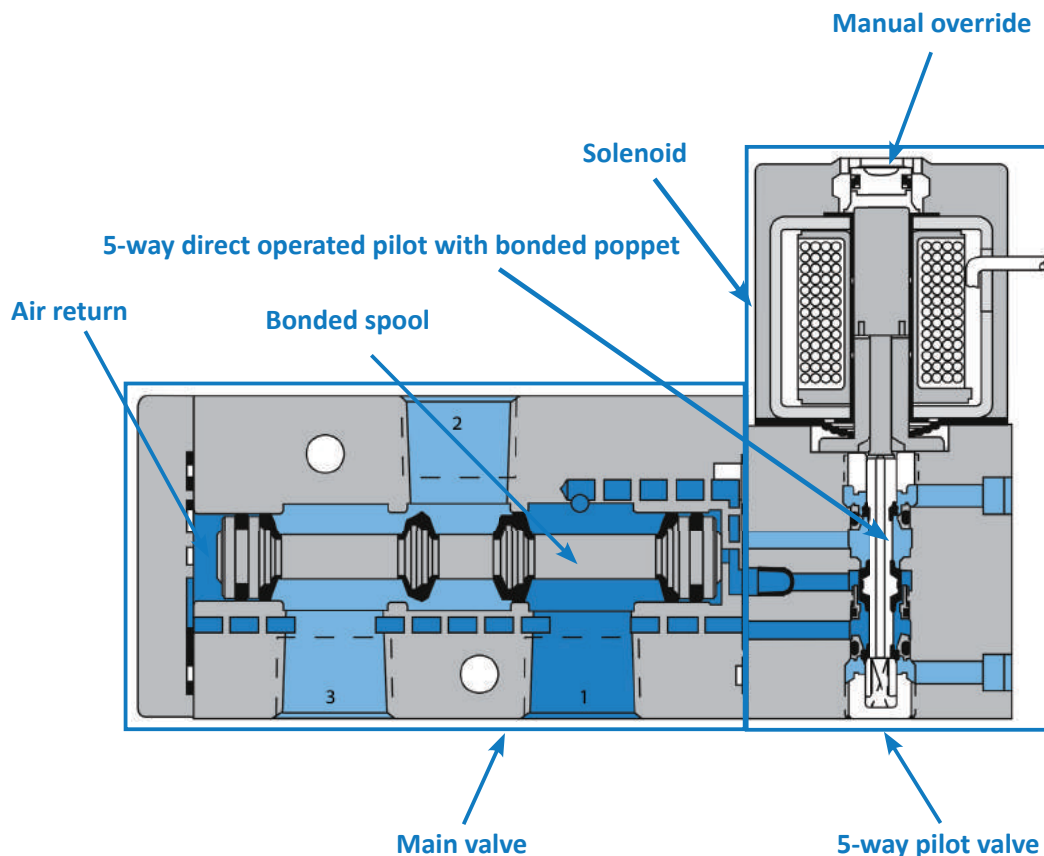
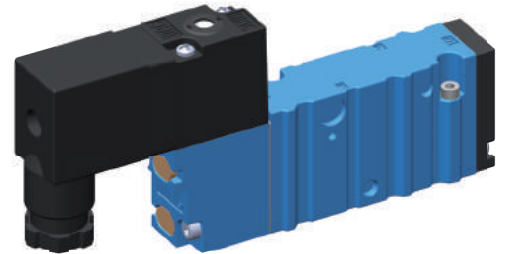
MAC 52 Series

MAC 52 Series - Solenoid pilot operated valve

2-way & 3-way, 2 position, spool

Flow up to 1500 NI/min (1.5 Cv)

- ◇ MAC unique patented 5-way direct operating pilot valve
- ◇ The 5-way pilot develops maximum shifting forces both ways
- ◇ Short stroke with high flow
- ◇ Balanced spool, immune to variations of pressure, also provides high flow
- ◇ Bonded spool with minimum friction, shifting in a glass-like finished bore
- ◇ Wiping effect eliminates sticking
- ◇ Long service life
- ◇ Repair kit available for the complete valve



Valve with side ports, single operator, single pressure, internal pilot

MAC 52 Series - Solenoid pilot operated valve

Technical data

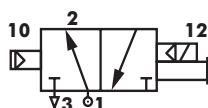
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Internal pilot : 1.3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure:	1.3 to 8 bar
Lubrication:	Not required, if used, select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to +50°C
Orifice:	7.3 mm
Flow (at 6 bar, ΔP=1 bar):	G1/8": 1200 NI/min (1.2 Cv) - G1/4": 1500 NI/min (1.5 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (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:	24V=5.4W Energize: 7.3 ms De-energize: 5.3 ms 110V~/50Hz Energize: 8-12 ms De-energize: 7-11 ms

Solenoid pilot operated valve

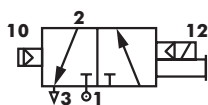
Single pressure models

3/2

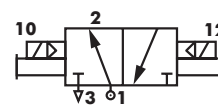
Single operator normally open valve



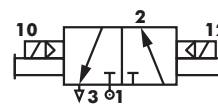
Single operator normally closed valve



Double operator normally open valve



Double operator normally closed valve



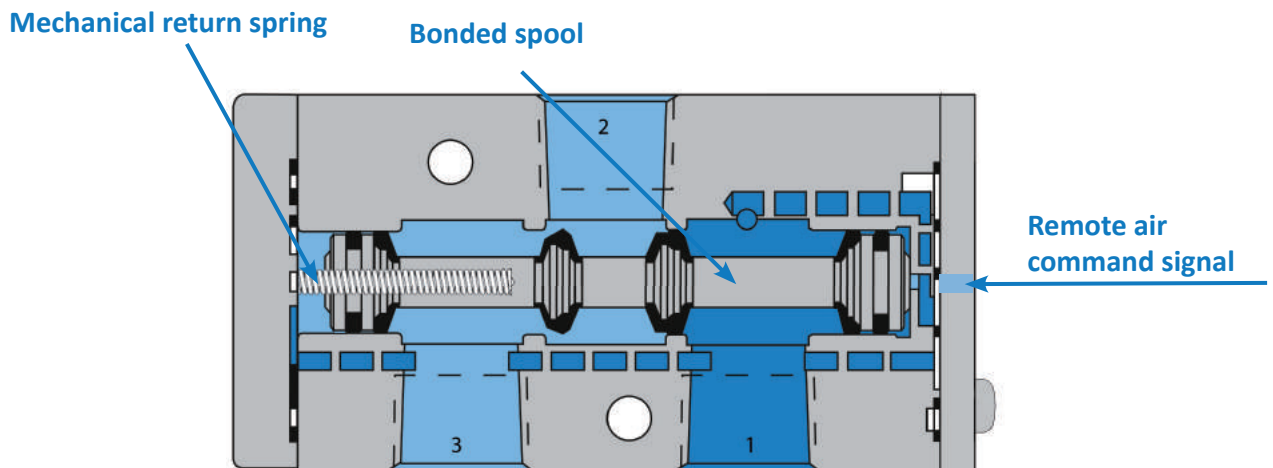
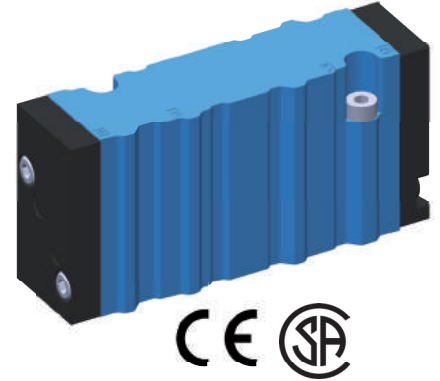
MAC 52 Series

MAC 52 Series - Remote air valve

2 ported & 3 ported, 2 position, spool

Flow up to 1500 NI/min (1.5 Cv)

- ◇ Balanced spool, immune to variations of pressure, also provides high flow
- ◇ Bonded spool with minimum friction, shifting in a glass-like finished bore
- ◇ Short stroke with high flow
- ◇ Wiping effect eliminates sticking
- ◇ Long service life
- ◇ Repair kit available for complete valve



Valve with single remote operator, single pressure, normally closed, side ports

MAC 52 Series - Remote air valve

Technical data

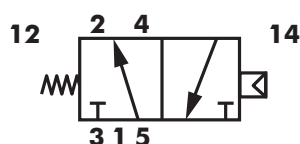
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Single op.: vacuum to 6.7 bar - Double op.: vacuum to 10 bar
Air signal pressure:	Single op.: 2.7 to 10 bar - Double op.: 1.3 to 10 bar
Lubrication:	Not required, if used, select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to +50°C
Orifice:	7.5 mm
Flow (at 6 bar, ΔP=1 bar):	G1/8": 1200 NI/min (1.2 Cv) - G1/4": 1500 NI/min (1.5 Cv)

Remote air valve

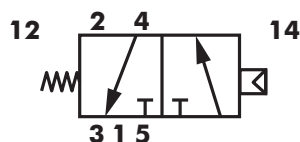
Single pressure models

3/2

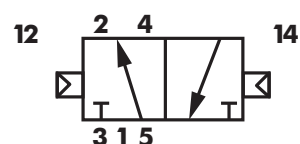
Single operator normally open valve



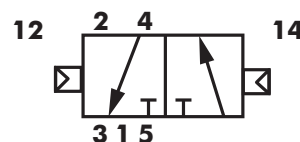
Single operator normally closed valve



Double operator normally open valve



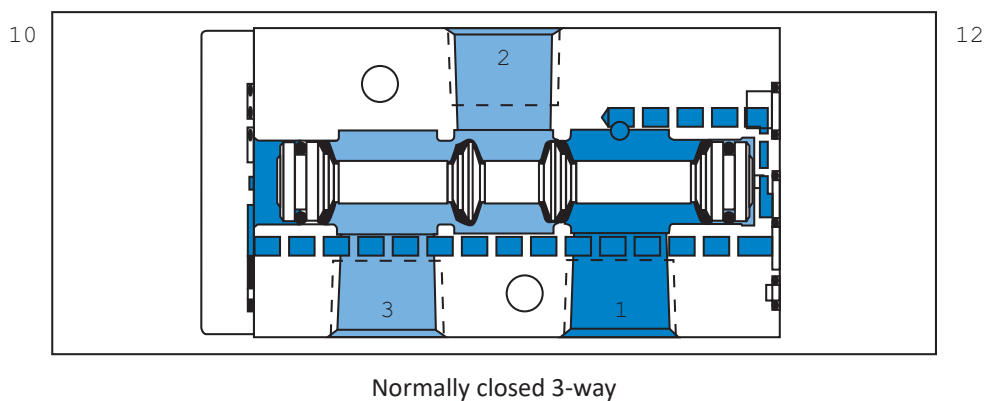
Double operator normally closed valve



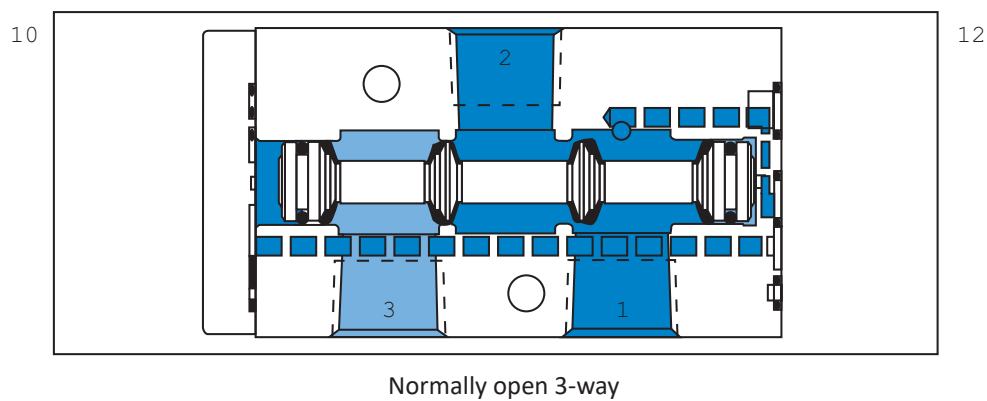
MAC 52 Series

MAC 52 Series - Spool configurations

Internal Pilot



Internal Pilot



MAC 52 Series

MAC 52 Series - How to order

How to order valve

52A - X X - X X X - X X - X X X X - X X X

PILOT VALVE - See below

SPOOL TYPE	BODY OPTIONS	PORT SIZE & THREAD TYPE IN. & CYL.	BASE CONFIGURATION	INT./EXT. PILOT
1 Sgl. oper. N.C. main 2 Dbl. oper. N.C. main 3 Sgl.oper. N.O. main 4 Dbl.oper. N.O. main	1 Inline 3 port 3 Manifold body 4 Inline 3 port w/ memory spring 6 Manifold body w/ memory spring	0 Manifold body A 1/8 NPTF B 1/4 NPTF C 1/8 BSPPL D 1/4 BSPPL E 1/8 BSPTR F 1/4 BSPTR	0 Inline or manifold body	A Internal pilot B External pilot - For inline bodies only C Common external pilot

How to order remote air version

52A - X X - X X X - RA

Remote Air

SPOOL TYPE	BODY TYPE	PORT SIZE & THREAD TYPE	CONFIGURATION	PILOT PORT
1 Sgl. oper. NC. 2 Dbl. oper. NC. 3 Sgl. oper. NO. 4 Dbl. oper. NO.	1 Inline 3 port 3 Manifold body	0 Manifold body A 1/8" NPTF B 1/4" NPTF C 1/8" BSPPL D 1/4" BSPPL E 1/8" BSPTR F 1/4" BSPTR	0 Inline or manifold body	H Pilot port size #10-32 J Pilot port size M5 (Metric)

* For single operator valves, use MOD 1493

MAC 52 Series

MAC 52 Series - How to order

How to order solenoid operator

DM - D X X X - X X X*

VOLTAGE		LEAD WIRE LENGTH	MANUAL OVERRIDE	ELECTRICAL CONNECTOR*
JA	110 V~ / 50 Hz	O No wires	0 No operator	BA Flying leads
JB	220 V~ / 50 Hz	A 45 cm	1 Non-locking recessed	BK Flying leads with protection diode
JC	24 V~ / 50 Hz	B 60 cm	2 Locking recessed	BL Flying leads with protection varistor
DA	24 V= / 5.4 W	C 90 cm	3 Non-locking extended	JB DIN 43650 - Industrial type B connector (male + female)
DB	12 V= / 5.4 W	D 120 cm	4 Locking extended	JD DIN 43650 - Industrial type B connector with light (male + female)
DC	12 V= / 7.5 W	E 180 cm		JM DIN 43650 - Industrial type B connector (male only)
DD	24 V= / 7.3 W	F 240 cm		KA DIN 43650 - Industrial type C connector
FA	12 V= / 1.8 W	J Connector		KB DIN 43650 - Industrial type C connector with protection diode
FB	24 V= / 1.8 W			KJ DIN 43650 - Industrial type C connector with protection varistor
FE	12 V= / 2.4 W			TA Dual tabs with receptacles
FF	24 V= / 2.4 W			TB TA with protection diode

* Other options available, see page 11

GM - G X X X - X X X*

VOLTAGE		LEAD WIRE LENGTH	MANUAL OVERRIDE	ELECTRICAL CONNECTOR*
DC	24 V= / 1.8 W	O No wires	1 Non locking recessed	BA Flying leads w/o ground wire
DD	24 V= / 2.5 W	A 45 cm	3 Non locking extended	BB Flying leads w/ ground wire
DE	24 V= / 3.0 W	B 60 cm		BT Flying leads with LED light on top (no ground wire)
DF	24 V= / 4.0 W	C 90 cm		KA Plug-in wire assembly (no ground wire)
DJ	12 V= / 1.8 W	D 120 cm		KB Plug-in wire assembly w/ ground wire
DK	12 V= / 2.5 W	E 180 cm		KT Plug-in wire assembly w/ LED light on top
DM	12 V= / 3.0 W	F 240 cm		
DN	12 V= / 4.0 W	G 305 cm		
ED	120 V= / 2.5 W	H 366 cm		

* Other options available, see page 12

MAC 52 Series

MAC 52 Series - References for DM pilot valve

Codification table for voltages / Manual override / Electrical connection

VALVE CODE □ **-DM- XX X-X XX**
1 2 3 4

* From Lead wire length options choose A through F

Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.

1. VOLTAGE

D-XX X-X XX	VOLTAGE
DA	24V=5,4W
DB	12V=5,4W
DC	12V=7,5W
DD	24V=7,3W
DE	12V=12,7W
DF	24V=12,7W
DK	110V=4,7W
DJ	28V=5,2W
DL	64V=6W
DM	36V=5,3W
DN	6V=6W
DR	90V=6,6W
DS	110V=7,3W
DT	75V=5,6W
DP	48V=5,8W
FA	12V=1,8W
FB	24V=1,8W
FE	12V=2,4W
FF	24V=2,4W
JA	120V~/60Hz, 110V~/50Hz (2,9W)
JB	240V~/60Hz, 220V~/50Hz (2,9W)
JC	24V~/60Hz, 24V~/50Hz (3,7W)
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)
JE	220V~/60Hz (3,4W)
JF	240V~/50Hz (2,8W)
JG	200V~/60Hz, 200V~/50Hz (3,9W)

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"
J	Connector

3. MANUAL OVERRIDE

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

4. ELECTRICAL CONNECTION

D-XX X-X XX	ELECTRICAL CONNECTION
BA*	Flying leads
BK*	BA with protection diode
BL*	BA with protection varistor
CA*	1/2" NPS conduit with flying leads
CM*	1/2" NPS metal conduit with flying leads
CN*	1/2" NPS metal conduit with flying leads & ground
CK	1/2" NPS conduit with diode
CL	1/2" NPS conduit with MOV
HA	MAC JAC plug-in
HB	MAC JAC plug-in with light
HC	MAC JAC plug-in with diode & light
JB	DIN 43650 - Industrial type B connector (male + female)
JD	DIN 43650 - Industrial type B connector with light (male + f.)
JM	DIN 43650 - Industrial type B connector (male only)
JA	DIN 43650 - Industrial type A connector (male + female)
JC	DIN 43650 - Industrial type A connector with light (male + f.)
JJ	DIN 43650 - Industrial type A connector (male only)
KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industrial type C connect. with protection diode
KC	DIN 43650 - Industrial type C conn. with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Indust. type C conn. w/ light & protection diode
KF	DIN 43650 - Indust. type C conn. w/ light & protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Indust. type C conn. w/ protection diode (male)
KL	DIN 43650 - Indust. type C conn. w/ protection varistor (male)
LA	ISO 15217 standard connector plug-in (male only)
LB	ISO 15217 standard connector plug-in with diode (male only)
LC	ISO 15217 standard connector plug-in with MOV (male only)
LJ	ISO 15217 standard connector plug-in (male only)
LK	ISO 15217 standard connector plug-in with diode (male only)
LL	ISO 15217 standard connector plug-in with MOV (male only)
PA	Pico M8 (male only)
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
RA	Euro (M12) - 2 Pin
RB	Euro (M12) - 2 Pin with diode (male only)
RC	Euro (M12) - 2 Pin with MOV
RD	Euro (M12) - 2 Pin with light
RE	Euro (M12) - 2 Pin with diode & light
RF	Euro (M12) - 2 Pin with MOV & light

MAC 52 Series

MAC 52 Series - References for GM pilot valve

Codification table for voltages / Manual override / Electrical connection

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

1. VOLTAGE

G-XX X-X XX	VOLTAGE
DC	24 V =/1.8 W
DD	24 V =/1.8 W
DE	24 V =/3.0 W
DF	24 V =/4.0 W
DJ	12 V =/1.8 W
DK	12 V =/2.5 W
DM	12 V =/3.0 W
DN	12 V =/4.0 W

2. WIRE LENGTH

G-XX X-X XX	WIRE LENGTH
0	No lead wire (use only with "KJ" & "KM" electrical 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	300 cm - 120"
H	365 cm - 144"

3. MANUAL OVERRIDE

G-XX X-X XX	MANUAL OPERATOR
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

4. ELECTRICAL CONNECTION

G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with LED light parallel to leads
BD	Flying leads with LED light parallel to leads & ground wire
BE	Flying leads with suppression diode
BF	Flying leads with supp. diode & ground wire
BG	Flying leads with supp. diode plus LED light parallel to leads
BH	Flying leads with supp. diode plus LED light parallel to leads & ground wire
BN	Flying leads with supp. diode plus blocking diode
BP	Flying leads w/ supp. diode plus blocking diode & ground wire
BR	Flying leads w/ supp. diode plus blocking diode & LED light parallel to leads
BS	Flying leads with supp. diode plus blocking diode & LED light parallel to leads & Ground Wire

BT	Flying leads with LED light on top
BU	Flying leads with LED light on top & ground wire
BV	Flying leads with supp. diode plus LED light on top
BW	Flying leads w/ supp. diode plus LED light on top & ground wire
BX	Flying leads w/ supp. diode plus blocking diode & LED on top
BY	Flying leads with supp. diode plus blocking diode & LED on top & ground wire

4. ELECTRICAL CONNECTION


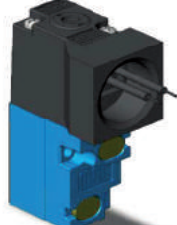
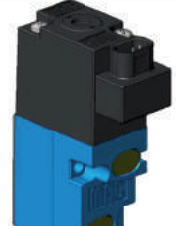
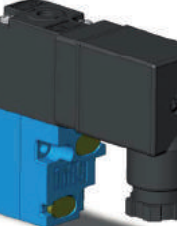


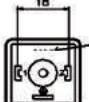
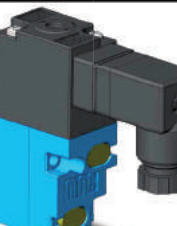
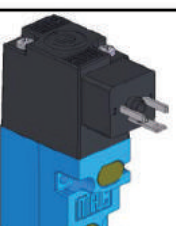

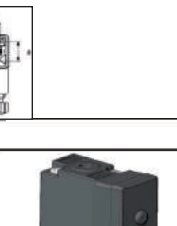
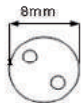
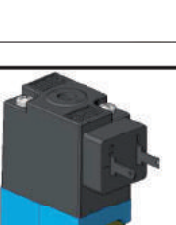
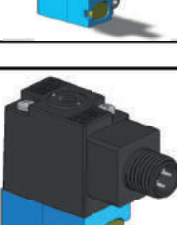
G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
GA*	MAC JAC Solenoid plug-in
GB*	MAC JAC Solenoid plug-in with diode
GC*	MAC JAC Solenoid plug-in with MOV
GD*	MAC JAC Solenoid plug-in with light
GE*	MAC JAC Solenoid plug-in with diode & light
GF*	MAC JAC Solenoid plug-in with MOV & light
GG*	MAC JAC Solenoid plug-in with rectifier
GH*	MAC JAC Solenoid plug-in with rectifier & 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 LED (male only)
GN*	MAC JAC Solenoid plug-in with diode & LED (male only)
GP*	MAC JAC Solenoid plug-in with MOV & LED (male only)
GR*	MAC JAC Solenoid plug-in with rectifier (male only)
GS*	MAC JAC Solenoid plug-in with rectifier & LED (male only)
HA	Circuit board plug-in w/ full wave rectifier & LED (w/ ground wire)
HD	Same as "HA" without lead wire assembly
KA	Plug-in wire assembly
KB	Plug-in wire assembly with ground wire
KC	Solenoid plug-in wire assembly with rectifier and LED
KD	Solenoid plug-in wire ass. w/ rectifier and LED w/ ground
KE	Plug-in wire assembly w/ suppression diode
KF	Plug-in wire assembly w/ suppression diode & ground wire
KJ	Plug-in without wire assembly for "KA" above
KM	Plug-in without wire assembly for "KB" above
KN	Plug-in wire assembly w/ suppression diode plus blocking diode
KP	Plug-in wire ass. w/ suppression diode + blocking diode & ground wire
KT	Plug-in wire assembly with LED light on top (no ground wire)
KU	Plug-in wire assembly with LED light on top & ground wire
KV	Plug-in wire assembly with supp. diode plus LED light on top
KW	Plug-in wire ass. w/ suppression diode + LED light on top & ground wire
KX	Plug-in wire ass. w/ suppression diode + block. diode & LED light on top
KY	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top & ground wire
PA	Pico
TJ	Dual Tabs - Mini Plug-in

Note: Blocking diode is located in the lead wire

* MAC JAC Connector not available with AC Voltage options

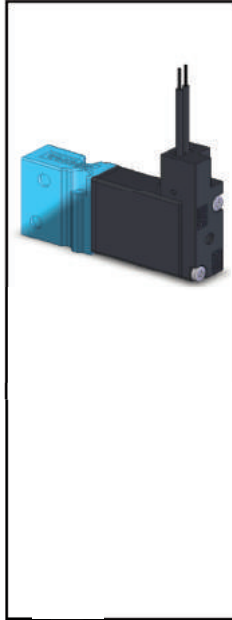
MAC 52 Series

MAC 52 Series - Codification electrical connection DM pilot valve (coil / connector configurations)

	<p>BA* Flying leads</p> <p>BK* BA with protection diode</p> <p>BL* BA with protection varistor</p> <p>* From lead wire length options choose</p>		<p>CA* 1/2" NPS conduit with flying leads</p> <p>CM* 1/2" NPS metal conduit with flying leads</p> <p>CN* 1/2" NPS metal conduit with flying leads & ground</p> <p>CK 1/2" NPS conduit with diode</p> <p>CL 1/2" NPS conduit with MOV</p> <p>* From lead wire length options choose</p>
	<p>HA MAC JAC plug-in</p> <p>HB MAC JAC plug-in with light</p> <p>HC MAC JAC plug-in with diode & light</p>		<p>JB DIN 43650 - Industrial type B connector (male + female)</p> <p>JD DIN 43650 - Industrial type B connector with light (male + female)</p> <p>JM DIN 43650 - Industrial type B connector (male only)</p> <p>11mm pin spacing</p> 
	<p>JA DIN 43650 - Industrial type A connector (male + female)</p> <p>JC DIN 43650 - Industrial type A connector with light (male + female)</p> <p>JJ DIN 43650 - Industrial type A connector (male only)</p> <p>Form A - 18mm pin spacing</p> 		<p>KA DIN 43650 - Industrial type C connector</p> <p>KB DIN 43650 - Industrial type C connector with protection diode</p> <p>KC DIN 43650 - Industrial type C connector with protection varistor</p> <p>KD DIN 43650 - Industrial type C connector with light</p> <p>KE DIN 43650 - Industrial type C connector with light and protection diode</p> <p>KF DIN 43650 - Industrial type C connector with light and protection varistor</p> <p>KG DIN 43650 - Industrial type C connector with light & diode</p> <p>KJ DIN 43650 - Industrial type C connector (male only)</p> <p>KK DIN 43650 - Industrial type C connector with protection diode (male only)</p> <p>KL DIN 43650 - Industrial type C connector with protection varistor (male only)</p>
	<p>LA ISO 15217 standard connector plug-in (male only)</p> <p>LB ISO 15217 standard connector plug-in with diode (male only)</p> <p>LC ISO 15217 standard connector plug-in with MOV (male only)</p> <p>LJ ISO 15217 standard connector plug-in (male only)</p> <p>LK ISO 15217 standard connector plug-in with diode (male only)</p> <p>LL ISO 15217 standard connector plug-in with MOV (male only)</p> 		<p>PA Pico M8 (male only)</p>  <p>8mm</p> <p>M* 2-pin thread or snap fit</p>
	<p>TA Dual tabs with receptacles</p> <p>TB TA with protection diode</p> <p>TD TA with light</p> <p>TE TA with light and protection diode</p> <p>TJ Dual tabs (male only)</p> <p>TK TJ with protection diode</p> <p>TM TJ with light</p> <p>TN TJ with light and protection diode</p>		<p>RA Euro (M12) - 2 Pin</p> <p>RB Euro (M12) - 2 Pin with diode (male only)</p> <p>RC Euro (M12) - 2 Pin with MOV</p> <p>RD Euro (M12) - 2 Pin with light</p> <p>RE Euro (M12) - 2 Pin with diode & light</p> <p>RF Euro (M12) - 2 Pin with MOV & light</p>

MAC 52 Series

MAC 52 Series - Codification electrical connection GM pilot valve (coil / connector configurations)



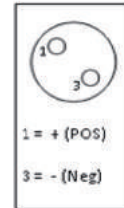
BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with LED light parallel to leads
BD	Flying leads with LED light parallel to leads & ground wire
BE	Flying leads with suppression diode
BF	Flying leads with supp. diode & ground wire
BG	Flying leads with supp. diode plus LED light parallel to leads
BH	Flying leads with supp. diode plus LED light parallel to leads & ground wire
BN	Flying leads with supp. diode plus blocking diode
BP	Flying leads with supp. diode plus blocking diode & ground wire
BR	Flying leads with supp. diode plus blocking diode & LED light parallel to leads
BS	Flying leads with supp. diode plus blocking diode & LED light parallel to leads & Ground Wire
BT	Flying leads with LED light on top
BU	Flying leads with LED light on top & ground wire
BV	Flying leads with supp. diode plus LED light on top
BW	Flying leads with supp. diode plus LED light on top & ground wire
BX	Flying leads with supp. diode plus blocking diode & LED on top
BY	Flying leads with supp. diode plus blocking diode & LED on top & ground wire



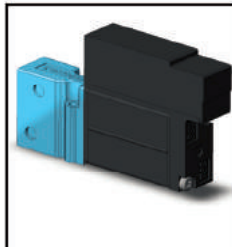
KA	Plug-in wire assembly
KB	Plug-in wire assembly with ground wire
KC	Solenoid plug-in wire assembly with rectifier and LED
KD	Solenoid plug-in wire assembly with rectifier and LED with ground
KE	Plug-in wire assembly w/ suppression diode
KF	Plug-in wire assembly w/ suppression diode & ground wire
KJ	Plug-in without wire assembly for "KA" above
KM	Plug-in without wire assembly for "KB" above
KN	Plug-in wire assembly with suppression diode plus blocking diode
KP	Plug-in wire assembly with suppression diode plus blocking diode & ground wire
KT	Plug-in wire assembly with LED light on top (no ground wire)
KU	Plug-in wire assembly with LED light on top & ground wire
KV	Plug-in wire assembly with supp. diode plus LED light on top
KW	Plug-in wire assembly with supp. diode plus LED light on top & ground wire
KX	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top
KY	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top & ground wire



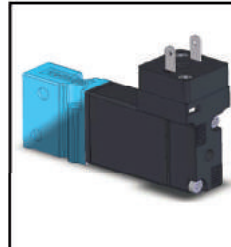
GA*	MAC JAC Solenoid plug-in
GB*	MAC JAC Solenoid plug-in with diode
GC*	MAC JAC Solenoid plug-in with MOV
GD*	MAC JAC Solenoid plug-in with light
GE*	MAC JAC Solenoid plug-in with diode & light
GF*	MAC JAC Solenoid plug-in with MOV & light
GG*	MAC JAC Solenoid plug-in with rectifier
GH*	MAC JAC Solenoid plug-in with rectifier & 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 LED (male only)
GN*	MAC JAC Solenoid plug-in with diode & LED (male only)
GP*	MAC JAC Solenoid plug-in with MOV & LED (male only)
GR*	MAC JAC Solenoid plug-in with rectifier (male only)
GS*	MAC JAC Solenoid plug-in with rectifier & LED (male only)
* MAC JAC Connector not available with AC Voltage options	



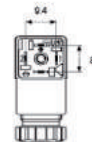
PA	Pico
M* 2-Pin Thread or Snap Fit	
8mm	



HA	Circuit board plug-in with full wave rectifier & LED (with ground wire)
HD	Same as "HA" without lead wire assembly



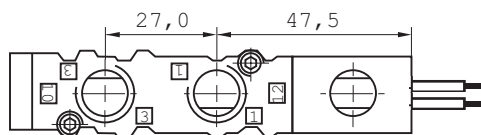
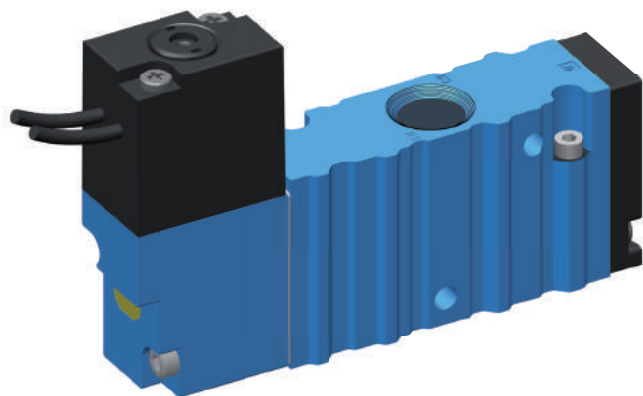
TJ	Dual Tabs - Mini Plug-in
MICRO DIN 43650-Industrial Standard C	
9.4mm Pin Spacing	



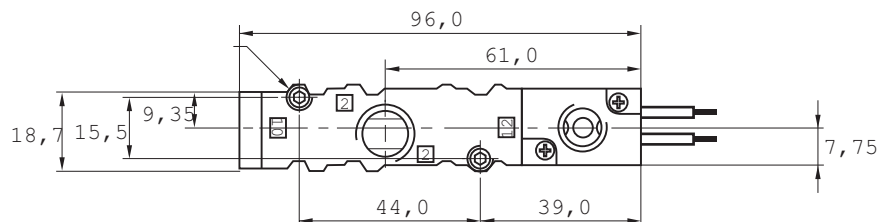
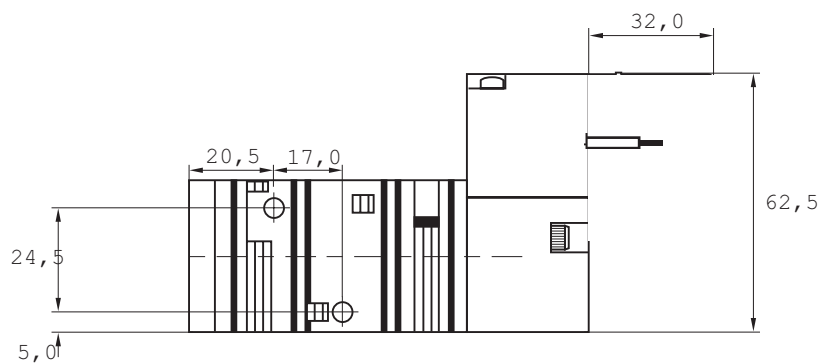
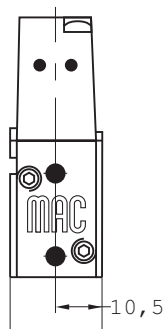
MAC 52 Series

MAC 52 Series - Dimensions

52 Series - Inline valve



All dimensions are in mm



MAC 52 Series

MAC 52 Series - Repair kits (main ones)

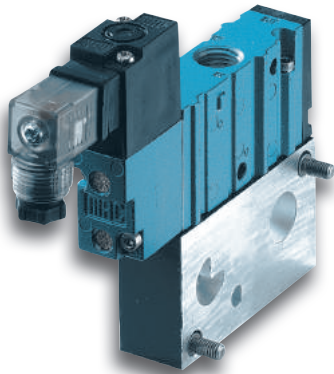
PART REFERENCE	DESCRIPTION
S-52001	Spool only, single pressure, single operator, normally closed
S-52002	Spool only, single pressure, single operator, normally closed, with memory spring
S-52004	Spool only, single pressure, single operator, normally open
S-52005	Spool only, single pressure, single operator, normally open, with memory spring
K-52001	Repair kit, single pressure, single operator, normally closed
K-52002	Repair kit, single pressure, double operator, normally closed
K-52003	Repair kit, single pressure, single operator, normally closed, with memory spring
K-52004	Repair kit, single pressure, single operator, normally open, with memory spring
K-52005	Repair kit, single pressure, double operator, normally closed, with memory spring
K-52006	Repair kit, single pressure, single operator, normally open
K-52007	Repair spool, single pressure, double operator, normally open
K-52009	Single pressure, double operator, normally open, with memory spring
DM-D...-...	Complete pilot valve (45 series type)
GM-G...-...	Complete pilot valve (44 series type)
16524	Pressure seal - pilot valve to body
17013-01	O-Ring with manifold base (3 pieces required per valve)
17015-01	O-Ring with inline base (2 pieces required per valve)

MOST COMMON MODIFICATIONS	DESCRIPTION
T65C	High temperatures
532B	Washdown IP65
0389	Solenoid turned 180°
0650	Food applications

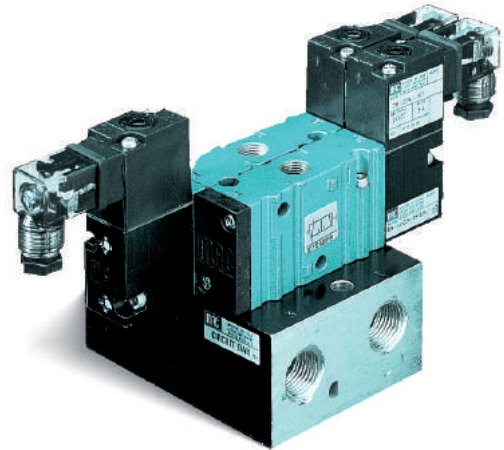
For other modifications, please consult factory

MAC 52 Series

MAC 52 Series - Circuit bar®



**ADD-ON STYLE BAR
WITH MANIFOLD MOUNT VALVES
CBP052A TYPE**



**STANDARD BAR WITH
INLINE MOUNTED VALVES
CBM052A TYPE**

Design description

General

The 52 series circuit bar® is machined from a single block of extruded anodized aluminium to provide a common inlet, common exhaust and optional common external pilot. Two different configurations are available, the standard bar (fixed number of stations), and the add-on style bar which provides a means to attach additional stations as needed.

Electrical

Both styles are non plug-in circuit bars®. All electrical connections are made at the solenoid.

Valving

Inline and manifold type valves can be mounted to the appropriate circuit bar®. Valves using both style pilot valves (44 and 45 series) can be mounted on the same circuit bar®. Both the inlet and exhaust passages can be isolated.

Porting

The common inlet and exhausts have a 3/8" tapped port. The optional common external pilot has an 1/8" tapped port. The CBP type bar is available in 1/8" and 1/4", bottom and side ports.

Accessories

Both the CBP and CBM style circuit bars® are available with an individual exhaust flow control. A blank station valve cover plate is available for both style bars. An end plate kit is supplied with the add-on style circuit bar®.

MAC 52 Series

MAC 52 Series - Circuit bar®

How to order standard bar

CBM052 A - X X X X - X X - 9					Valves, cover plates assembled to manifold
					Number of Stations
BAR TYPE	SPACING	CONFIGURATION	STYLE	PORT SIZE (COMMON PORTS)	
M Inline body bar	00 19.5 mm (standard)	A Inline body	A Standard bar	A 3/8" NPTF	
	01 21 mm	B Inline body with F.C.	B Add-on style bar	B 3/8" BSPPL	
	02 26 mm (conduit & rect. DIN type connectors)	C Inline body - Common external pilot	C Add-on style bar Common external pilot	C 3/8" BSPTR	
		D Inline body with F.C. Common external pilot	E Add-a-unit station (21 mm minimum)		

Right-hand end plate kit included w/ bar ass'y on "B" & "C" style bar

Replacement parts & accessories

M-52001-01	Right-Hand end plate kit (NPTF)
M-52001-01P	Right-Hand end plate kit (BSPPL)
M-52002-01	Right-Hand end plate kit, common ext. pilot (NPTF)
M-52002-01P	Right-Hand end plate kit, common ext. pilot (BSPPL)
M-04001	Blank station kit for inline body
N-04001	Flow control assembly (1 per station)
17015-01	O-Ring body port seal (2 per station)
35043	Body to bar body mounting screw (2 per station)

Ordering examples

CBM052A-00CCA-06

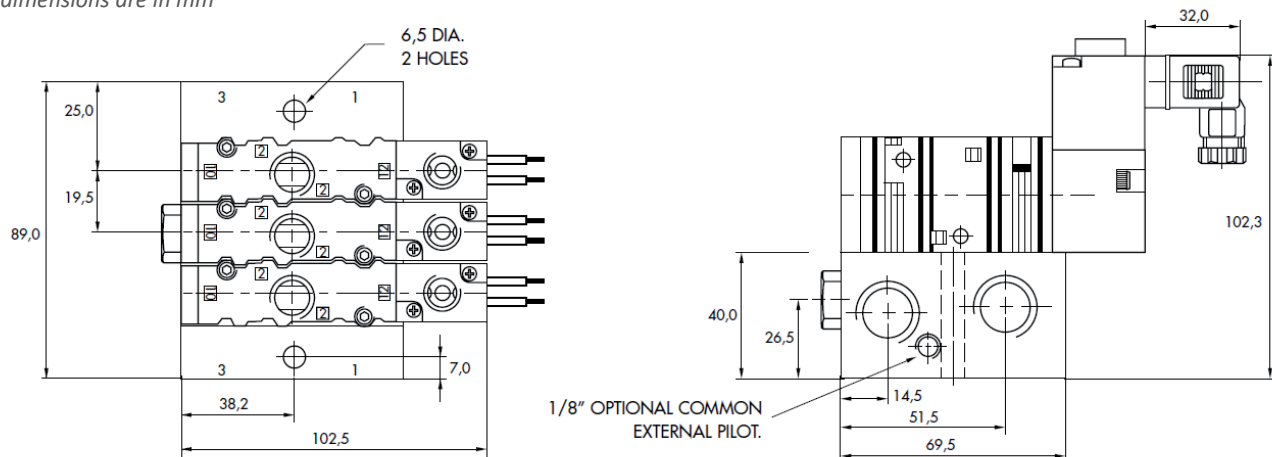
Inline body bar, 19.5 mm spacing, common external pilot, 3/8" NPTF common ports, add-on style bar, six identical stations.

CBM052A-01CEA-01

Inline body bar, 21 mm spacing, common external pilot, 3/8" NPTF common ports, one station add-a-unit, can be added to above 6 station bar.

Dimensions

All dimensions are in mm



Drawing for a standard bar, cylinder ports in valve

MAC 52 Series

MAC 52 Series - Circuit bar®

How to order add-on style bar

CBP052 A - X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR TYPE	SPACING	CONFIGURATION	STYLE	PORT SIZE (CYLINDER PORTS)
P Manifold body bar	00 19.5 mm (standard) 01 21 mm 02 26 mm (conduit & rect. DIN type connectors)	A Side cyl. port B Bottom cyl. port C Side cyl. port w/ F.C. D Bottom cyl. port w/ F.C. E Side cyl. port Common ext. pilot F Bottom cyl. port Common ext. pilot G Side cyl. port w/ F.C. Common ext. pilot H Bottom cyl. port w/ F.C. Common ext. pilot	A Standard bar B Add-on style bar C Add-on style bar Common external pilot E Add-a-unit station (21 mm minimum)	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR D 1/4" NPTF E 1/4" BSPPL F 1/4" BSPTR

Right-hand end plate kit included w/ bar ass'y
on "B" & "C" style bar

Replacement parts & accessories

M-52001-01	Right-Hand end plate kit (NPTF)
M-52001-01P	Right-Hand end plate kit (BSPPL)
M-52002-01	Right-Hand end plate kit, common ext. pilot (NPTF)
M-52002-01P	Right-Hand end plate kit, common ext. pilot (BSPPL)
M-52003	Blank station kit for manifold body
N-04001	Flow control assembly (1 per station)
17013-01	Body to base seal (3 per station)
35043	Body to bar mounting screw (2 per station)

Ordering examples

CBP052A-00ABA-06

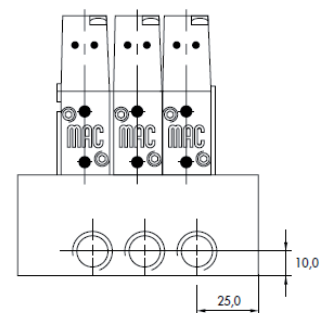
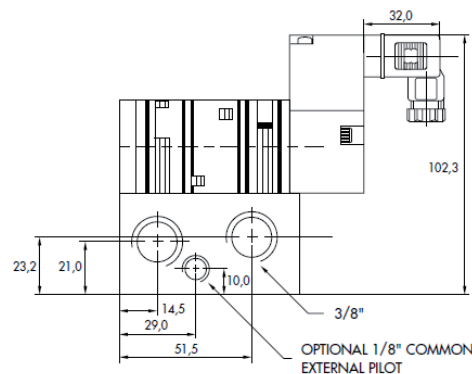
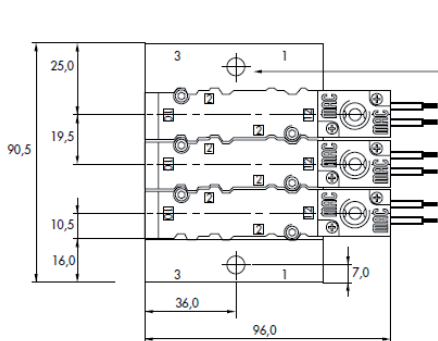
Manifold body bar, 19.5 mm spacing, side cyl. port 1/8" NPTF, add-on style bar, six identical stations.

CBP052A-01AEA-01

Manifold body bar, 21 mm spacing, one station add-a-unit, side cyl. port 1/8" NPTF, can be added to above 6 station bar.

Dimensions

All dimensions are in mm

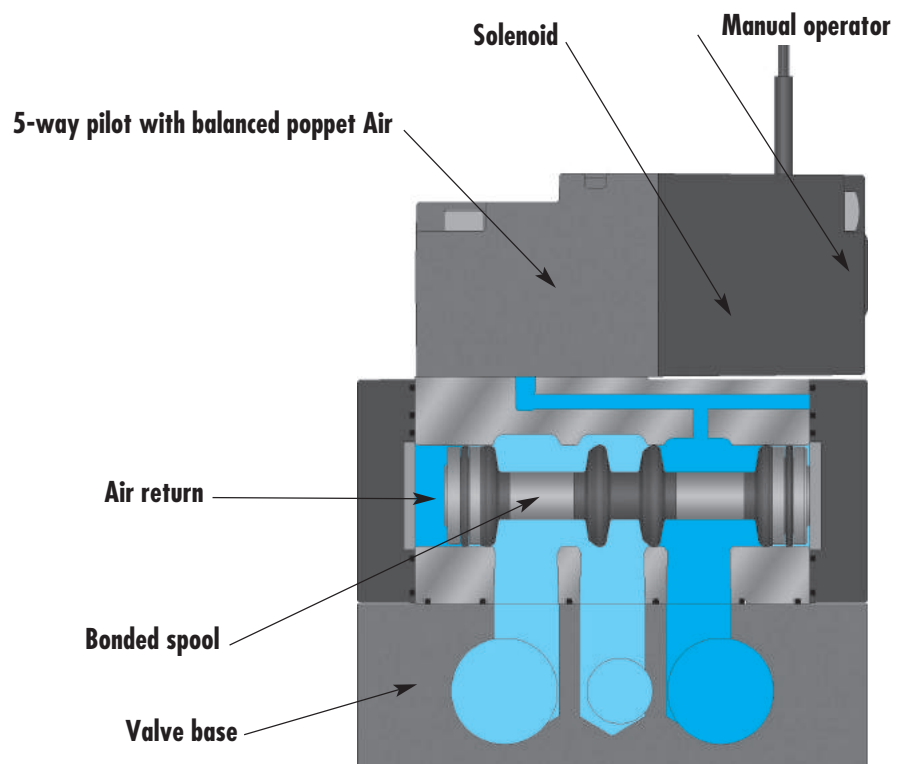


Drawing for an add-on style bar,
cylinder ports in base

Direct solenoid and solenoid pilot operated valves 8 mm valve

Individual mounting

Inline



SERIES FEATURES

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



Direct solenoid and solenoid pilot operated valves

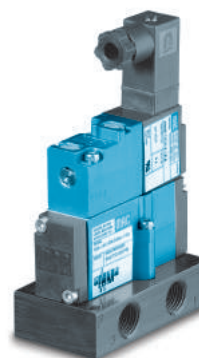
Function Port size Flow [Max] Individual mounting

3/2 NO-NC G1/4"- G3/8" 2000 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. 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	NC Valve	NO Valve
G1/4"	Internal	53A-1AC-XX-X-xxx-xxx	53A-2AC-XX-X-xxx-xxx
G3/8"		53A-1AD-XX-X-xxx-xxx	53A-2AD-XX-X-xxx-xxx
G1/4"	External from 10 end	53A-1BC-XX-X-xxx-xxx	53A-2BC-XX-X-xxx-xxx
	External from 12 end	53A-1CC-XX-X-xxx-xxx	53A-2CC-XX-X-xxx-xxx
G3/8"	External from 10 end	53A-1BD-XX-X-xxx-xxx	53A-2BD-XX-X-xxx-xxx
	External from 12 end	53A-1CD-XX-X-xxx-xxx	53A-2CD-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	1 Non-locking	BA Flying leads
JB 220 V~/50Hz	B 60 cm	2 Locking	KA Mini square connector
JC 24 V~/50Hz	J* 15 cm		KD Mini square connector with light
FB 24 V=/1,8W	*For use with "J" & "K" type connectors		
DA 24 V=/5,4W			JB Rectangular connector
DF 24 V=/12,7W			JD Rectangular connector with light

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
			GA MAC JAC solenoid plug-in wire assembly

- * Other options available, see page options.
 ** Other options available, see page options.

OPTIONS

53A-X-AC-xx-xxxx-xxx

For Memory spring

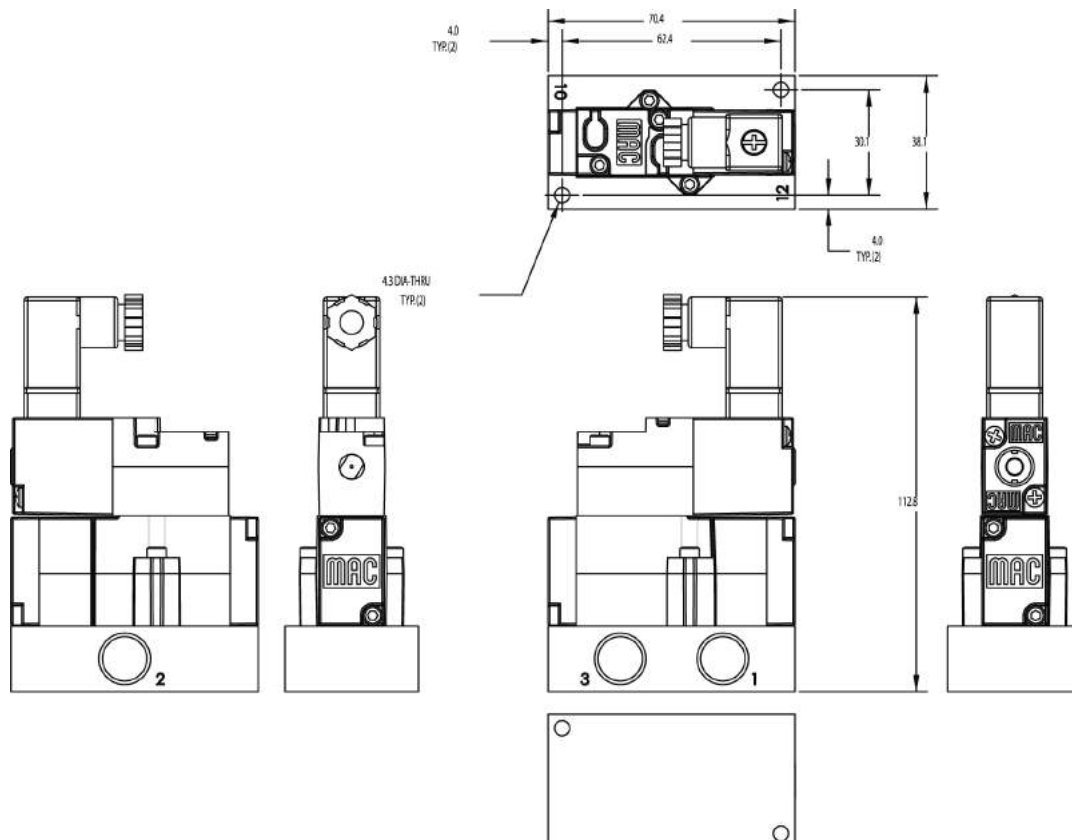
Replace by 5 (Normally closed)
 Replace by 6 (Normally open)

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 :	8,5 mm
Flow :	G1/4" : 1700 NI/min (Cv 1.7) – G3/8" : 2000 NI/min (Cv 2.0)
Coil :	Epoxy encapsulated - Class A wires – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	1,0 to 5,4W (Higher wattages available)
Options :	• NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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

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

* From Lead wire length options choose A through F

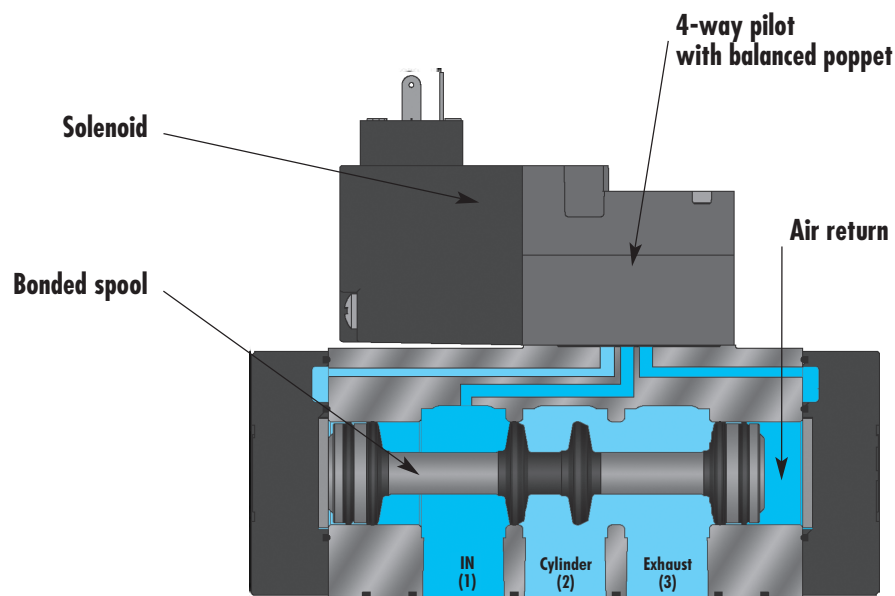
** From Lead wire length options choose 0 through F

Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.

Direct solenoid and solenoid pilot operated valves 8 mm valve

Individual mounting

Sub-base Non plug-in	Sub-base Plug-in



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.
- Normally closed or normally open valve function.
- May be plugged for 2-way operation.
- Internal or external pilot.

Function Port size Flow [Max] Individual mounting

3/2 NO-NC G3/8" - G1/2" - G3/4" 5100 NI/min

Sub-base
Non plug-in

OPERATIONAL BENEFITS

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

HOW TO ORDER



Port size	Pilot air	NC Valve	NO Valve
Valve less base	Internal	54A-AA-000-DM-xxxx-xxx	54A-BA-000-DM-xxxx-xxx
	External from 10 end	54A-AC-000-DM-xxxx-xxx	54A-BC-000-DM-xxxx-xxx
	External from 12 end	54A-AB-000-DM-xxxx-xxx	54A-BB-000-DM-xxxx-xxx
G3/8"	Internal	54A-AA-D1A-DM-xxxx-xxx	54A-BA-D1A-DM-xxxx-xxx
	External from 10 end	54A-AC-D1A-DM-xxxx-xxx	54A-BC-D1A-DM-xxxx-xxx
	External from 12 end	54A-AB-D1A-DM-xxxx-xxx	54A-BB-D1A-DM-xxxx-xxx
G1/2"	Internal	54A-AA-E1A-DM-xxxx-xxx	54A-BA-E1A-DM-xxxx-xxx
	External from 10 end	54A-AC-E1A-DM-xxxx-xxx	54A-BC-E1A-DM-xxxx-xxx
	External from 12 end	54A-AB-E1A-DM-xxxx-xxx	54A-BB-E1A-DM-xxxx-xxx
G3/4"	Internal	54A-AA-F1A-DM-xxxx-xxx	54A-BA-F1A-DM-xxxx-xxx
	External from 10 end	54A-AC-F1A-DM-xxxx-xxx	54A-BC-F1A-DM-xxxx-xxx
	External from 12 end	54A-AB-F1A-DM-xxxx-xxx	54A-BB-F1A-DM-xxxx-xxx

SOLENOID OPERATOR ➤

DM-D XXX-XXX*

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
DM	Muffled exhaust	DA	24V~/5,4W	A	45 cm	0	No operator	BA	Flying leads
DP	Piped exhaust	DF	24V~/12,7W	B	60 cm	1	Non locking	JB	Rectangular connector
DU	Universal pilot - Pilot exhaust out main exhaust	FB	24V~/1,8W	J*	15 cm	2	Locking	JD	Rectangular connector with light
		JA	110V~/50Hz					KA	Mini square connector
		JB	220V~/50Hz					KD	Mini square connector with light
		JC	24V~/50Hz						

* Other options available, see page options.

OPTIONS

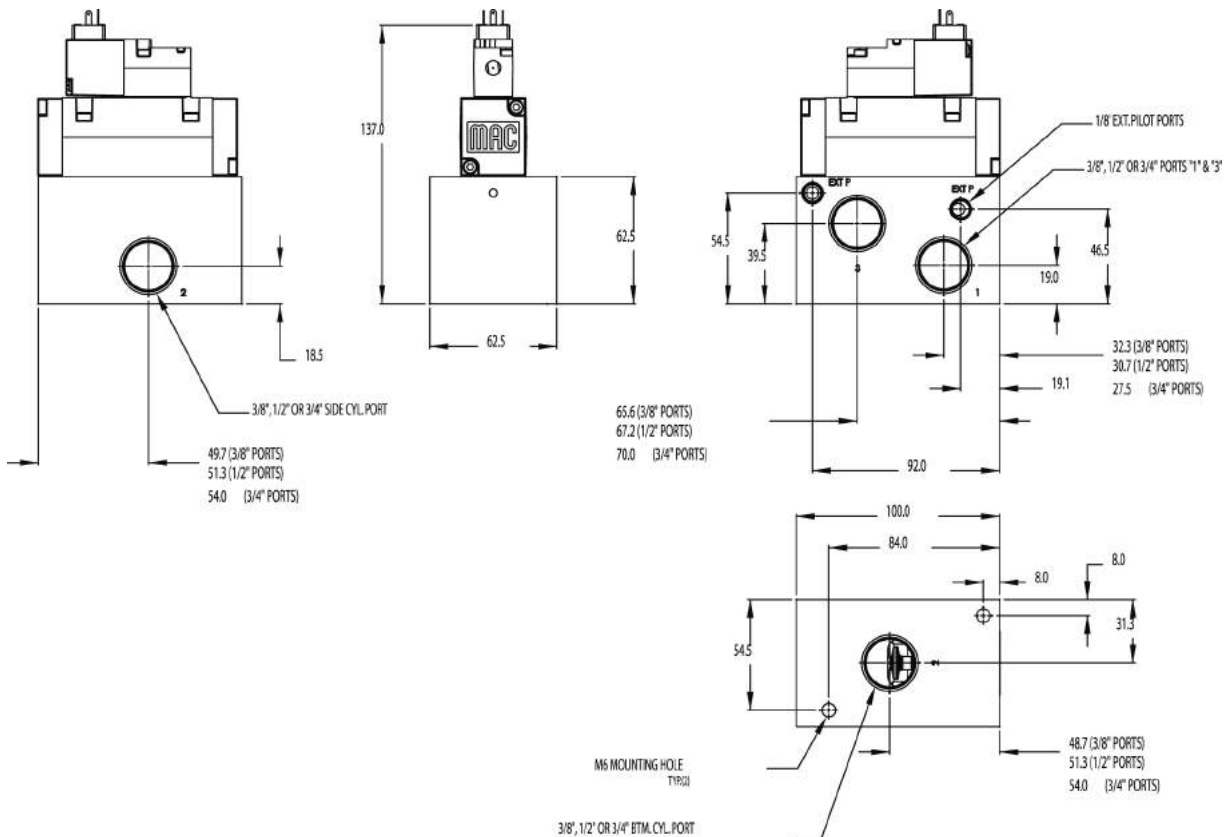
54A-Xx-XxX-DM-xxxx-xxx

- 1 Individual base - Side ports
- 2 Individual Base - Bottom Cylinder ports (No side cylinder port)
- 0 Base only
- A Base Mount Body - Internal pilot
- B Base Mount Body - External pilot (12 end)
- C Base Mount Body - External pilot (10 end)
- E Base Mount Body - Internal pilot - Pilot exhaust out main exhaust (with DU pilot)
- F Base Mount Body - External pilot (12 end) - Pilot exhaust out main exhaust (with DU pilot)
- G Base Mount Body - External pilot (10 end) - Pilot exhaust out main exhaust (with DU pilot)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Main valve: External pilot :Vacuum to 8 bar Internal pilot: 1,3 to 8 bar External pilot: 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 :	13,5 mm
Flow :	Up to 5100 NL/min (Cv 5.1)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	1,8 to 5,4W (Higher wattages available)

Options: NPTF threads

DIMENSIONS Dimensions shown are metric (mm)



Function Port size Flow [Max] Individual mounting

3/2 NO-NC G3/8" - G1/2" - G3/4" 5100 NI/min

Sub-base
plug-in

OPERATIONAL BENEFITS

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

HOW TO ORDER



Port size	Pilot air	NC Valve	NO Valve
Valve less base	Internal	54A-AA-000-DM-xxxx-xxx	54A-BA-000-DM-xxxx-xxx
	External from 10 end	54A-AC-000-DM-xxxx-xxx	54A-BC-000-DM-xxxx-xxx
	External from 12 end	54A-AB-000-DM-xxxx-xxx	54A-BB-000-DM-xxxx-xxx
G3/8"	Internal	54A-AA-D1B-DM-xxxx-xxx	54A-BA-D1B-DM-xxxx-xxx
	External from 10 end	54A-AC-D1B-DM-xxxx-xxx	54A-BC-D1B-DM-xxxx-xxx
	External from 12 end	54A-AB-D1B-DM-xxxx-xxx	54A-BB-D1B-DM-xxxx-xxx
G1/2"	Internal	54A-AA-E1B-DM-xxxx-xxx	54A-BA-E1B-DM-xxxx-xxx
	External from 10 end	54A-AC-E1B-DM-xxxx-xxx	54A-BC-E1B-DM-xxxx-xxx
	External from 12 end	54A-AB-E1B-DM-xxxx-xxx	54A-BB-E1B-DM-xxxx-xxx
G3/4"	Internal	54A-AA-F1B-DM-xxxx-xxx	54A-BA-F1B-DM-xxxx-xxx
	External from 10 end	54A-AC-F1B-DM-xxxx-xxx	54A-BC-F1B-DM-xxxx-xxx
	External from 12 end	54A-AB-F1B-DM-xxxx-xxx	54A-BB-F1B-DM-xxxx-xxx

SOLENOID OPERATOR ➤

DM-D XXX-XXX*

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
DM	Muffled exhaust	DA	24V~/5,4W	A	45 cm	0	No operator	BA	Flying leads
DP	Piped exhaust	DF	24V~/12,7W	B	60 cm	1	Non locking	JB	Rectangular connector
DU	Universal pilot - Pilot exhaust out main exhaust	FB	24V~/1,8W	J*	15 cm	2	Locking	JD	Rectangular connector with light
		JA	110V~/50Hz					KA	Mini square connector
		JB	220V~/50Hz					KD	Mini square connector with light
		JC	24V~/50Hz						

* Lead wire length for external plug-in connectors must be "J"

* Other options available, see page options.

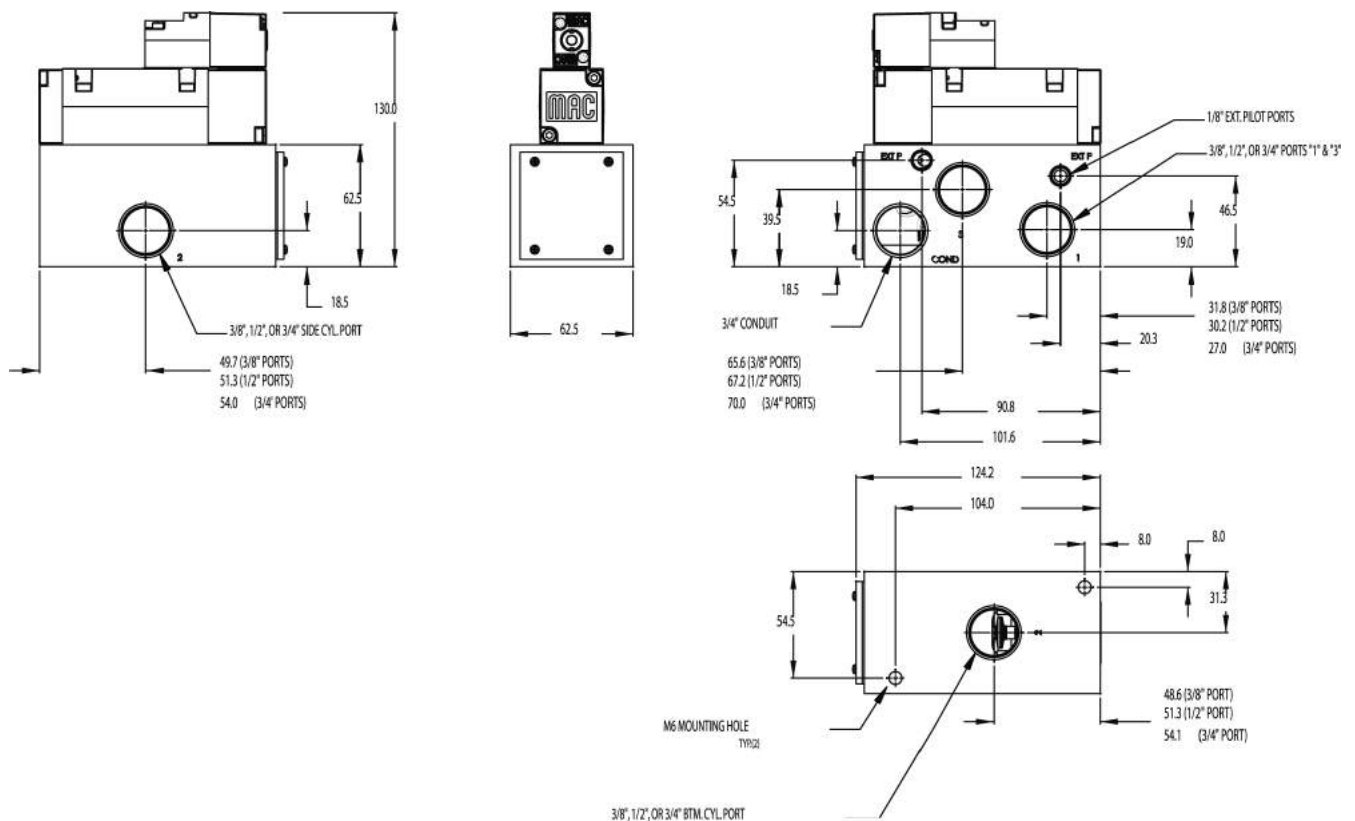
OPTIONS

54A-Xx-XxX-DM-xxxx-xxx

- 1 Individual base - Side ports
- 2 Individual Base - Bottom Cylinder ports (No side cylinder port)
- 0 Base only
- A Base Mount Body - Internal pilot
- B Base Mount Body - External pilot (12 end)
- C Base Mount Body - External pilot (10 end)
- E Base Mount Body - Internal pilot - Pilot exhaust out main exhaust (with DU pilot)
- F Base Mount Body - External pilot (12 end) - Pilot exhaust out main exhaust (with DU pilot)
- G Base Mount Body - External pilot (10 end) - Pilot exhaust out main exhaust (with DU pilot)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Main valve: External pilot : Vacuum to 8 bar Internal pilot: 1,3 to 8 bar External pilot: 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 :	13,5 mm
Flow :	Up to 5100 NL/min (Cv 5.1)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Protection :	Consult factory
Power :	1,8 to 5,4W (Higher wattages available)
Options:	NPTF threads

DIMENSIONS Dimensions shown are metric (mm)





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

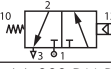
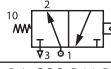
Function	Port size	Flow [Max]	Individual mounting
3/2	G3/8" - G1/2" - G3/4"	5100 NI/min	Individual base

OPERATIONAL BENEFITS

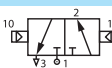
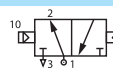
1. Balanced spool, immune to variations of pressure, also provides high flow.
2. Bonded spool with minimum friction, shifting in a glass-like finished bore.
3. Wiping effect eliminates sticking
4. Long service life
5. Short stroke with high flow

HOW TO ORDER

SINGLE OPERATOR

Port size	Pilot air	NC Valve	NO Valve
			
Valve less base	Internal	54A-AA-000-DM-RA14	54A-BA-000-DM-RA14
	External from 10 end	54A-AC-000-DM-RA14	54A-BC-000-DM-RA14
	External from 12 end	54A-AB-000-DM-RA14	54A-BB-000-DM-RA14
G3/8"	Internal	54A-AA-D1A-DM-RA14	54A-BA-D1A-DM-RA14
	External from 10 end	54A-AC-D1A-DM-RA14	54A-BC-D1A-DM-RA14
	External from 12 end	54A-AB-D1A-DM-RA14	54A-BB-D1A-DM-RA14
G1/2"	Internal	54A-AA-E1A-DM-RA14	54A-BA-E1A-DM-RA14
	External from 10 end	54A-AC-E1A-DM-RA14	54A-BC-E1A-DM-RA14
	External from 12 end	54A-AB-E1A-DM-RA14	54A-BB-E1A-DM-RA14
G3/4"	Internal	54A-AA-F1A-DM-RA14	54A-BA-F1A-DM-RA14
	External from 10 end	54A-AC-F1A-DM-RA14	54A-BC-F1A-DM-RA14
	External from 12 end	54A-AB-F1A-DM-RA14	54A-BB-F1A-DM-RA14

DOUBLE OPERATOR

Port size	Double operator NC Valve	Double operator NO Valve
		
Valve less base	54A-ED-000-RA	54A-FD-000-RA
G3/8"	54A-ED-D1C-RA	54A-FD-D1C-RA
G1/2"	54A-ED-E1C-RA	54A-FD-E1C-RA
G3/4"	54A-ED-F1C-RA	54A-FD-F1C-RA

OPTIONS

SINGLE OPERATOR MODELS

54A-xX-xX-DM-RA14

- 1 Individual Base – Side ports
- 2 Individual Base – Bottom Cylinder ports (No side cyl. port)
- 0 Base only
- E Base Mount Body – Internal pilot - Pilot exhaust out main exhaust (with DU pilot)
- F Base Mount Body – External pilot (12 end) – Pilot exhaust out main exhaust (with DU pilot)
- G Base Mount Body – External pilot (10 end) – Pilot exhaust out main exhaust (with DU pilot)

DUAL OPERATOR MODELS

54A-xx-xX-RA

- 1 Individual Base – Side ports
- 2 Individual Base – Bottom Cylinder ports (No side cyl. port)

TECHNICAL DATA

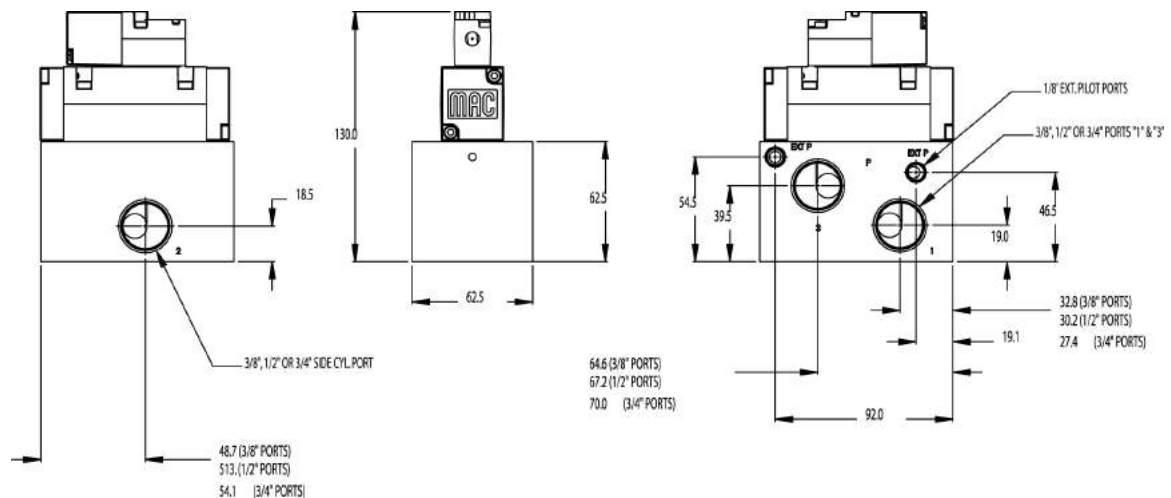
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Int. pilot & double remote: 1,3 to 8 bar External pilot: Vacuum to 8 bar
Air signal pressure :	Single operator: 2,3 to 4 bar - Double operator: 1,3 to 8 bar*
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	13,5 mm
Flow :	5100 NI/min (Cv 5.1)
* Note :	For external pilot and double remote, air signal pressure must be \geq main valve pressure

Options : • NPTF threads

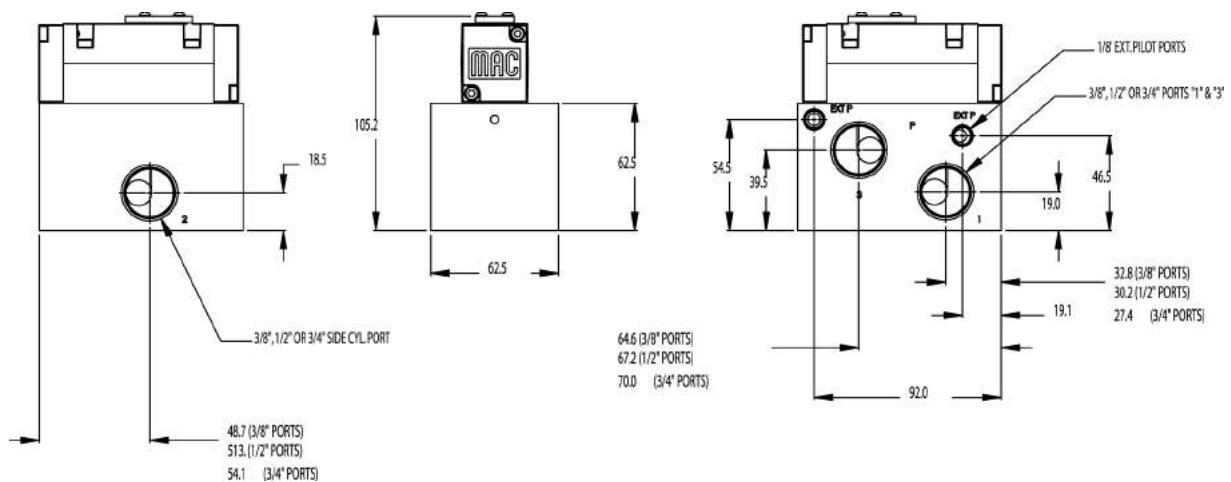
DIMENSIONS

Dimensions shown are metric (mm)

SINGLE REMOTE



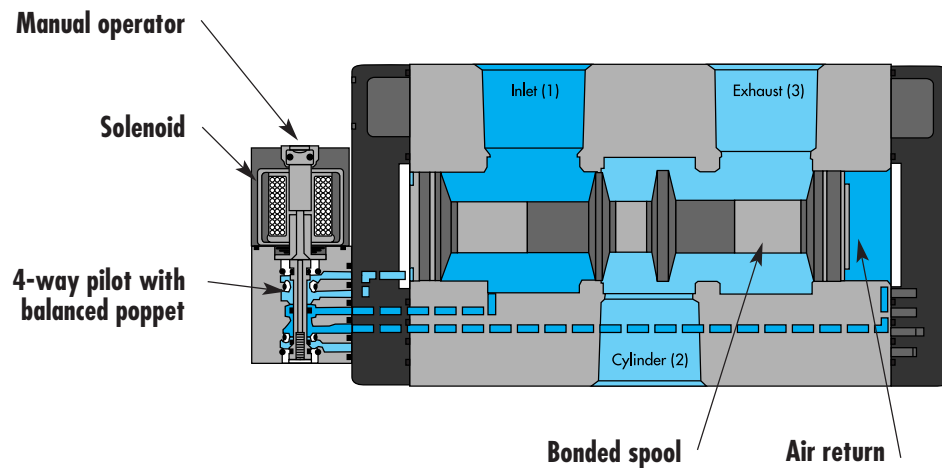
DOUBLE REMOTE



Direct solenoid and solenoid pilot operated valves

Individual mounting

Inline



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

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	67A-Cx-CAA-DM-Dxxx-xxx	67A-Ax-CAA-DM-Dxxx-xxx	67A-Dx-CAA-DM-Dxxx-xxx	67A-Bx-CAA-DM-Dxxx-xxx
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	67A-Cx-CAB-DM-Dxxx-xxx	67A-Ax-CAB-DM-Dxxx-xxx	67A-Dx-CAB-DM-Dxxx-xxx	67A-Bx-CAB-DM-Dxxx-xxx
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			

* Other options available, see page options.

OPTIONS

Spool type :

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

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

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

Mounting style :

67A-XX-XAX-DM-Dxxx-xxx

- G O-Ring mount

Spool return :

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

- 1 Standard return
- 2 Standard return with memory spring

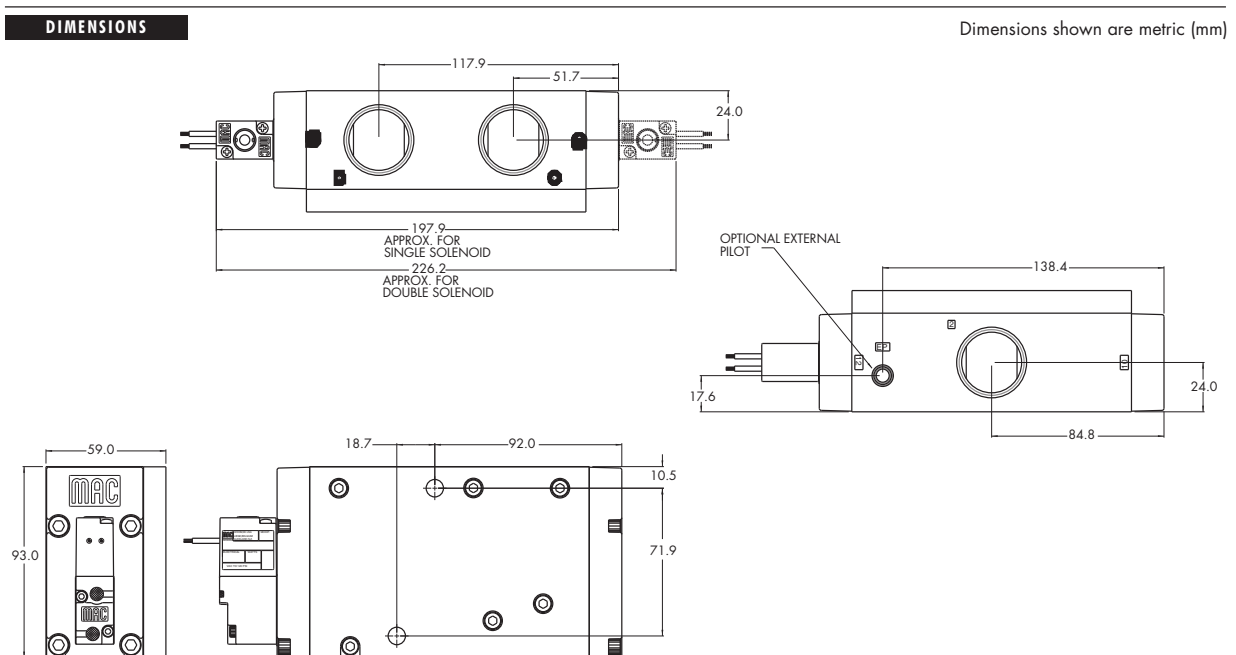
Pilot style :

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 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 :	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



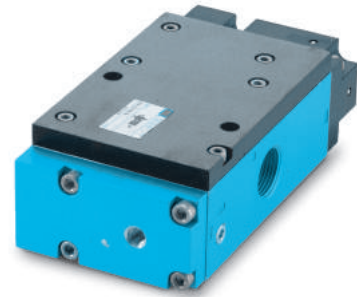


R e m o t e a i r v a l v e s

Function	Port size	Flow [Max]	Individual mounting
3/2	G3/4" - G1"	20000 NI/min	Inline

OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Powerful return forces thanks to the combination of mechanical and air springs.
3. Bonded spool with minimum friction, shifting in a glass like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.



HOW TO ORDER

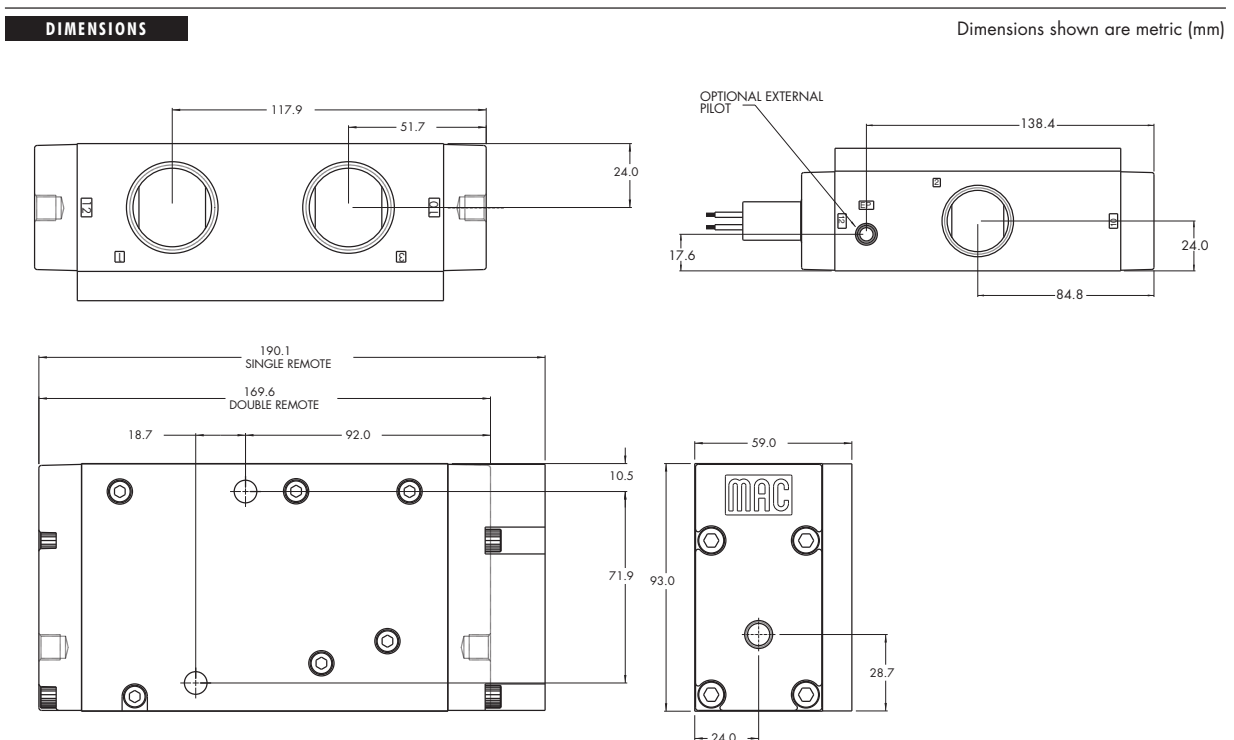
Port size	Pilot air	Single Operator		Double Operator	
		NO Valve	NC Valve	NO Valve	NC Valve
G3/4"	Internal	67A-C3-CRA-RA	67A-A3-CRA-RA	67A-D4-CRA-RA	67A-B4-CRA-RA
G1"	Internal	67A-C3-DRA-RA	67A-A3-DRA-RA	67A-D4-DRA-RA	67A-B4-DRA-RA
G3/4"	External	67A-C3-CRB-RE	67A-A3-CRB-RE	-	-
G1"	External	67A-C3-DRB-RE	67A-A3-DRB-RE	-	-

Note : Designation 'RE' required on remote air models with main valve pressures of vacuum to 1,3 bar.

'RE' provides an external pilot and should have a pressure range of 1,3 - 5 bar. Since the external pilot supplies the air spring, it must not exceed the remote air pilot pressure.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.3 to 10 bar (must be \geq main valve pressure)
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 :	3/4" : 14500 NI/min (Cv 14.5) - 1" : 20000 NI/min (Cv 20.0)

Options : • NPTF threads



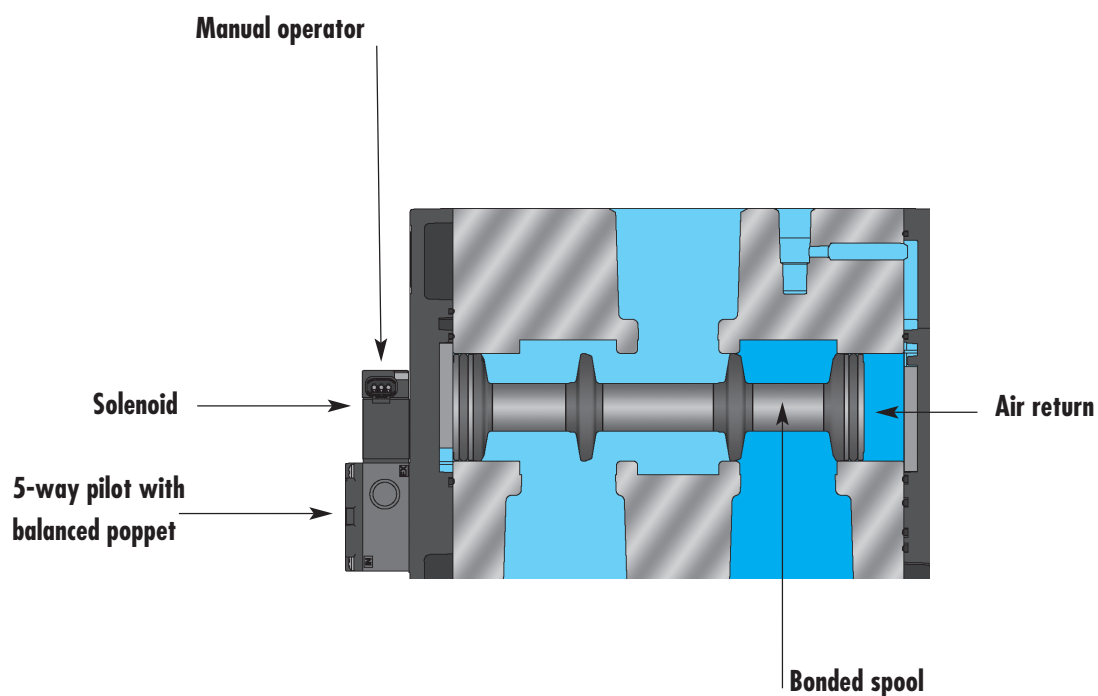
Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		

Individual mounting

Inline



SERIES FEATURES

- The 4-way pilot develops maximum shifting forces both ways.
- Balanced spool, immune to variations of pressure.
- Bonded spool with minimum frictions, shifting in a glass-like finished bore.
- Pilot with balanced poppet, high flow, short and consistent response times.
- Memory spring available.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual mounting
3/2, 2/2	G1"-G1 1/4"-G1 1/2"	31000 NI/min	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	Single operator NC	Single operator NO	Single operator Universal valve
G1"	Internal	68A-A1-DAA-Jxxx-xxx	68A-C1-DAA-Jxxx-xxx	-
	External	68A-A1-DAB-Jxxx-xxx	68A-C1-DAB-Jxxx-xxx	68A-G1-DAB-Jxxx-xxx
G1 1/4"	Internal	68A-A1-EAA-Jxxx-xxx	68A-C1-EAA-Jxxx-xxx	-
	External	68A-A1-EAB-Jxxx-xxx	68A-C1-EAB-Jxxx-xxx	68A-G1-EAB-Jxxx-xxx
G1 1/2"	Internal	68A-A1-FAA-Jxxx-xxx	68A-C1-FAA-Jxxx-xxx	-
	External	68A-A1-FAB-Jxxx-xxx	68A-C1-FAB-Jxxx-xxx	68A-G1-FAB-Jxxx-xxx

SOLENOID OPERATOR ➤

J **XXX-XXX****

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
AA* 120V~/5.4W	0 No lead wire	0 No operator	BA Flying leads
AC* 24V~/5.4W	A 45 cm	1 Recessed - Non locking	GA MAC JAC Solenoid plug-in
DA 24V~/5.4W	B 60 cm	2 Recessed - Locking	GB MAC JAC Solenoid plug-in with diode
DB 12V~/5.4W	C 90 cm	3 Extended - Non locking	GH MAC JAC Solenoid plug-in with rectifier and LED
DC 24V~/2.4W	D 120 cm	4 Extended - Locking	JB Rectangular connector
DD 12V~/2.4W	E 180 cm		JD Rectangular connector with light
DE 24V~/1.8W	F 240 cm		KA Mini square plug-in
DF 12V~/1.8W			KB Mini square plug-in with diode
			KH Mini square plug-in with rectifier & light

* Note: AC voltage requires connector with rectifier

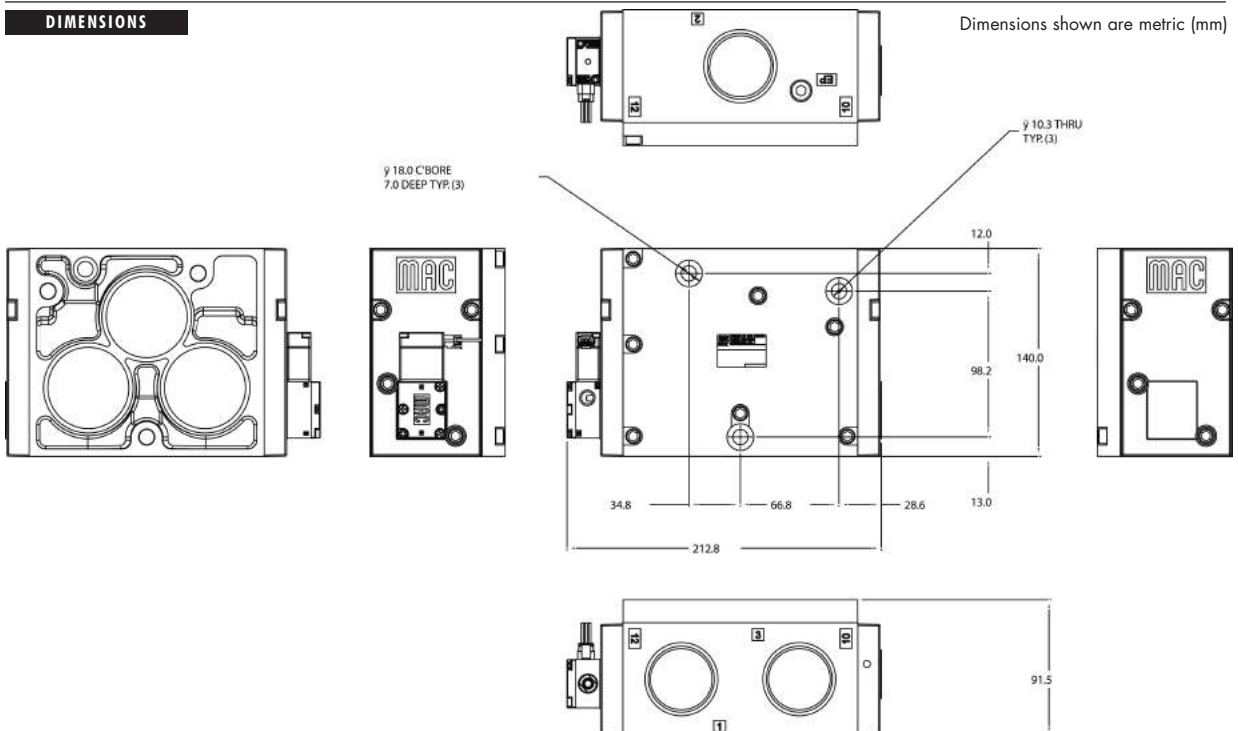
** Other options available, see page options.

OPTIONS

Pilot exhaust: 68A-xx-x-**Xx**-Jxxx-xxx (G)

G Ground wire / pin
A Standard Pilot exhaust
B Pilot exhaust out 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
Flow :	31000 Nl/min (Cv 31.0)
Power :	5.4 to 1.8 W
Voltage range:	-15% to +10% of nominal voltage
Options :	• NPTF threads



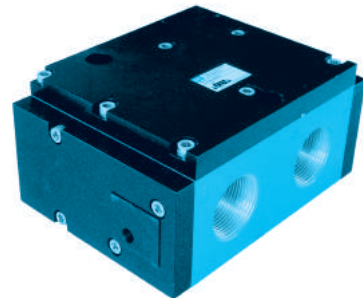


R e m o t e a i r v a l v e s

Function	Port size	Flow [Max]	Individual mounting
3/2, 2/2	G1", G1 1/4", G1 1/2"	31000 NI/min	Inline

OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure, also provides high flow.
2. Bonded spool with minimum friction, shifting in a glass-like finished bore.
3. Wiping effect eliminates sticking
4. Long service life



HOW TO ORDER

SINGLE OPERATOR

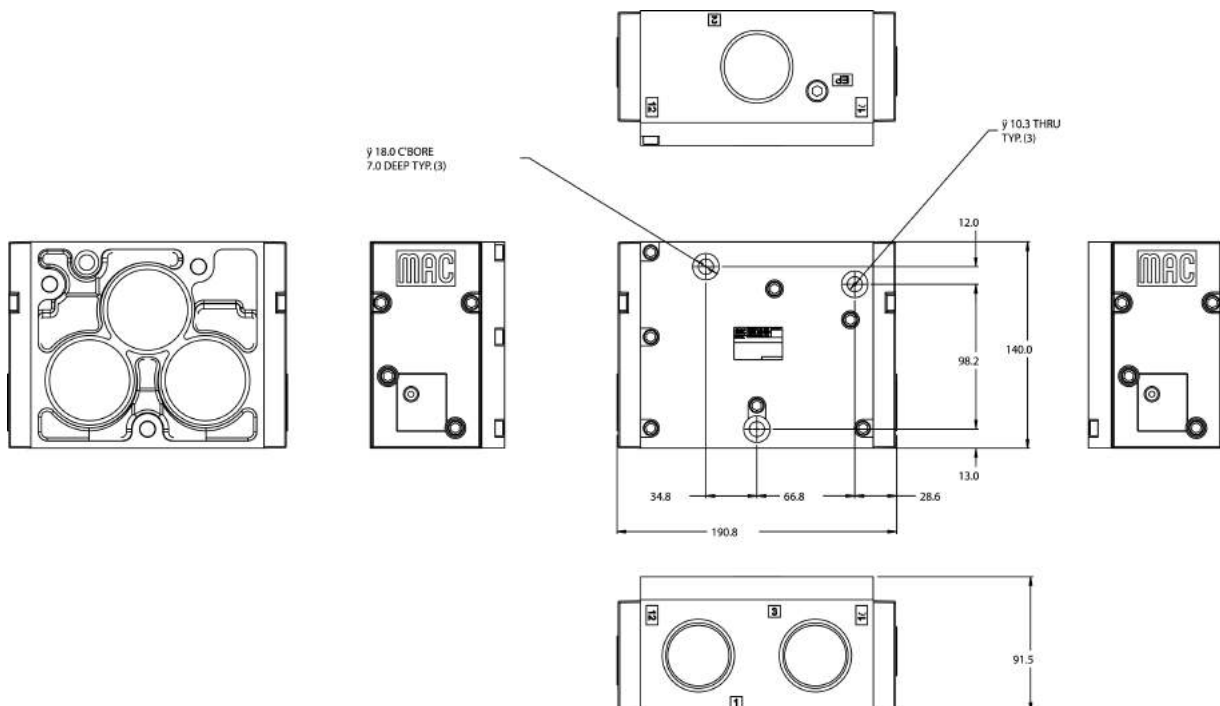
Port size	Air Spring	Single Operator NO valve	Single Operator NC valve
G 1	Internal	68A-C3-DRA-RA	68A-A3-DRA-RA
G 1 1/4"		68A-C3-ERA-RA	68A-A3-ERA-RA
G 1 1/2"		68A-C3-FRA-RA	68A-A3-FRA-RA
G 1	External	68A-C3-DRB-RE	68A-A3-DRB-RE
G 1 1/4"		68A-C3-ERB-RE	68A-A3-ERB-RE
G 1 1/2"		68A-C3-FRB-RE	68A-A3-FRB-RE

DOUBLE OPERATOR

Port size	Double Operator NO valve	Double Operator NC valve
G 1	68A-D4-DRB-RA	68A-B4-DRB-RA
G 1 1/4"	68A-D4-ERB-RA	68A-B4-ERB-RA
G 1 1/2"	68A-D4-FRB-RA	68A-B4-FRB-RA

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Air signal pressure :	1,3 to 8 bar (Must be \geq main valve pressure)
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 :	33,4 mm
Flow :	31000 Nl/min (Cv 31.0)

DIMENSIONS	Dimensions shown are metric (mm)
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Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

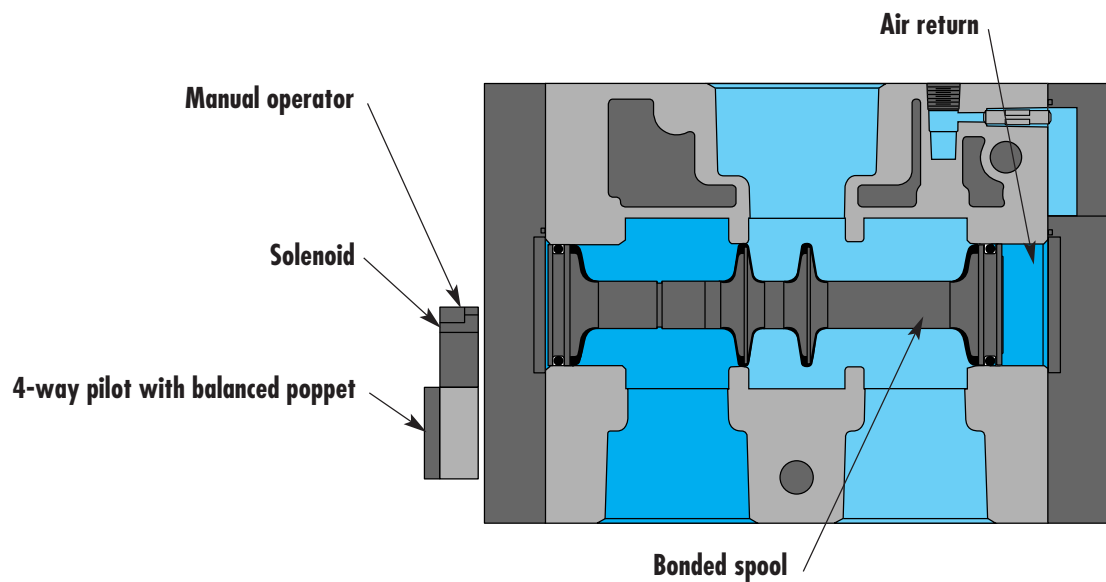
J XX X-X XX
1 2 3 4

(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

Individual mounting

Inline



SERIES FEATURES

- High force MACSOLENOID®.
- Optional low watt DC solenoids.
- Internal or external pilot.
- Normally open or normally closed function.
- Checked accumulator.
- May be plugged for 2-way operation.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual mounting
3/2 NO-NC, 2/2 NO-NC	G1 1/2" - G2" - G2 1/2"	60000 NI/min	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	Single Operator NC valve	Single Operator NO valve
G 1 1/2"	Internal	69A-A1-DAA-Jxxx-xxx	69A-C1-DAA-Jxxx-xxx
G 2"		69A-A1-EAA-Jxxx-xxx	69A-C1-EAA-Jxxx-xxx
G 2 1/2"		69A-A1-FAA-Jxxx-xxx	69A-C1-FAA-Jxxx-xxx
G 1 1/2"	External	69A-A1-DAB-Jxxx-xxx	69A-C1-DAB-Jxxx-xxx
G 2"		69A-A1-EAB-Jxxx-xxx	69A-C1-EAB-Jxxx-xxx
G 2 1/2"		69A-A1-FAB-Jxxx-xxx	69A-C1-FAB-Jxxx-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	0 No lead wire	1 Non-locking	BA Flying leads
DA 24V~/5,4W	A 45 cm	2 Locking	GA MAC JAC Solenoid plug-in
DB 12V~/5,4W	B 60 cm		GG MAC JAC Solenoid plug-in with rectifier
DC 24V~/2,4W	C 90 cm		JB Rectangular connector
DD 12V~/2,4W			JD Rectangular connector with light
			KA Mini square connector
			KD Mini square connector with light

* Other options available, see page options.

Note : - Use "O" no lead wire for "J", "K" and "L" type electrical connector.
- AC voltage requires connector with rectifier.

OPTIONS

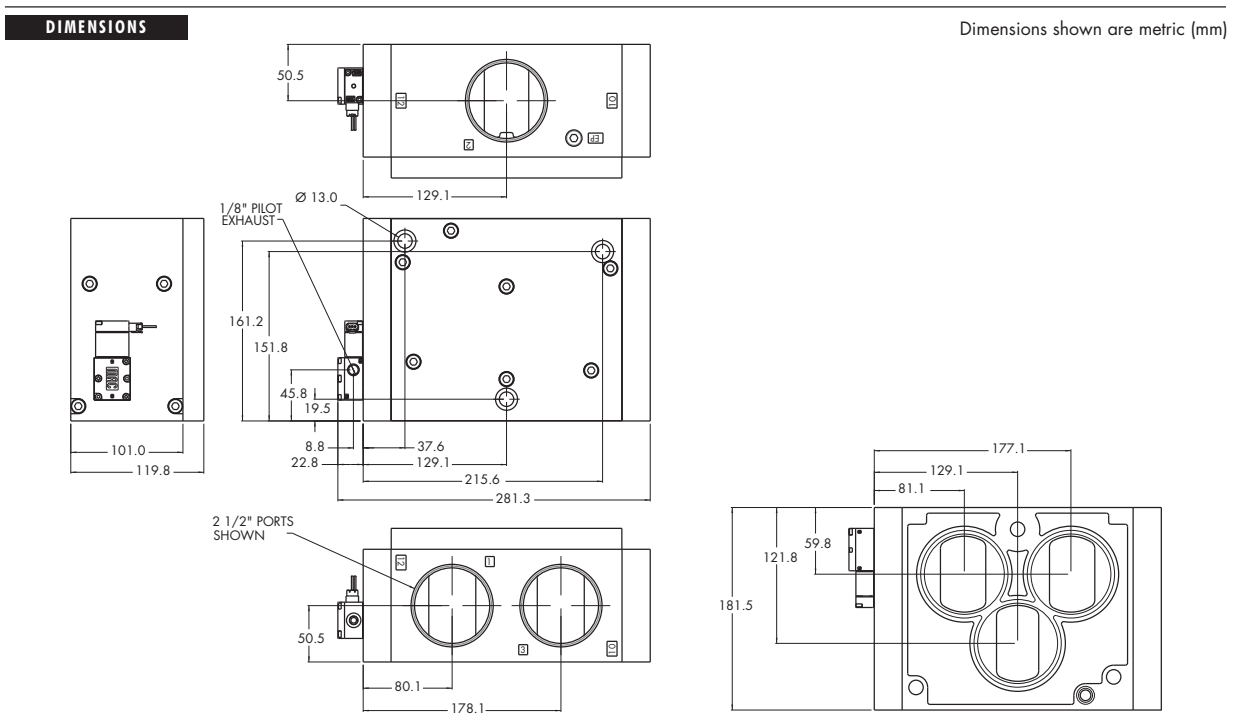
Pilot exhaust configuration:

69A-xx-**XX**-DM-Dxxx-xxx

- A** Standard pilot exhaust
- B** Pilot exhaust out main exhaust
- M** Manifold O-Ring mount

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 :	46,5 mm
Flow (at 6 bar, ΔP=1bar) :	60000 NI/min (Cv 60.0)
Coil :	Epoxy encapsulated – class A wire – 100% ED
Voltage range :	-15% to +10% of nominal voltage
Power :	5,4W – 2,4W – 1,8W

Options : • NPTF threads



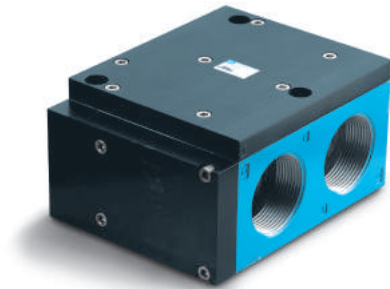


R e m o t e a i r v a l v e s

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

OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure
2. Bonded spool with minimum friction, shifting in a glass like finished bore
3. Wiping effect eliminates sticking and contamination
4. Long service life



HOW TO ORDER

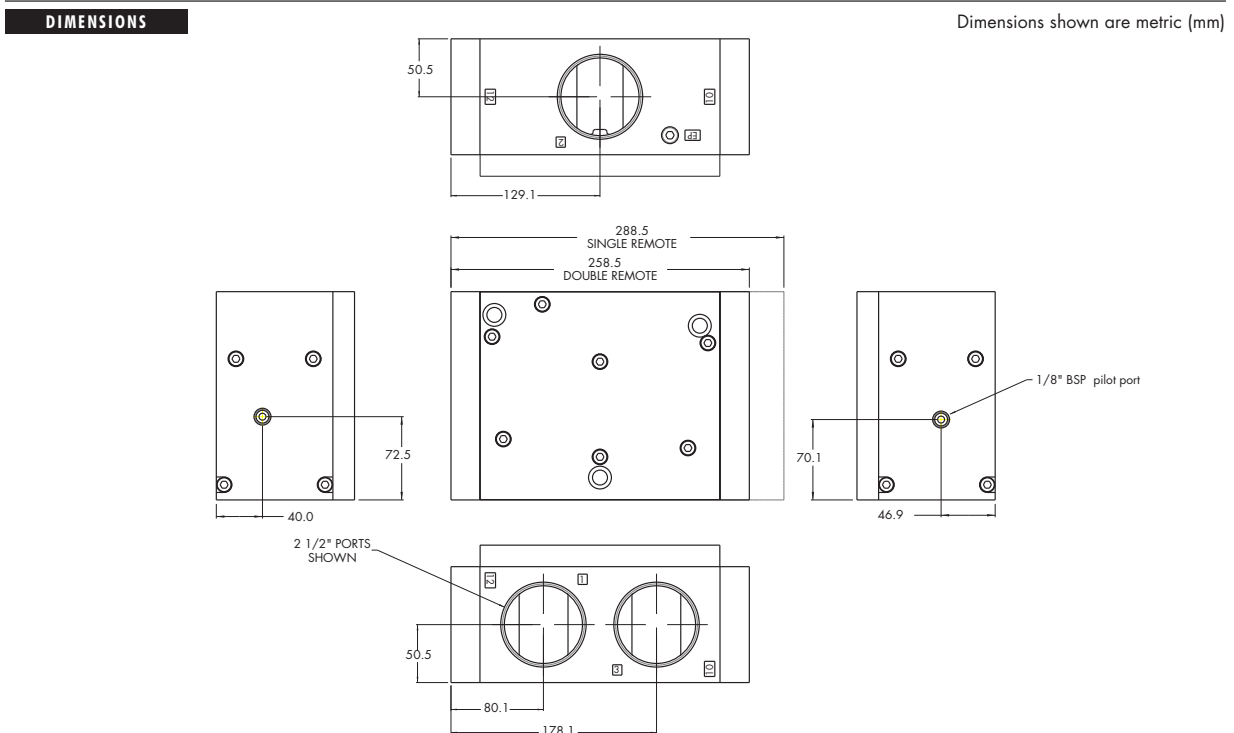
SINGLE OPERATOR

Port size	Air Spring	Single Operator NO valve	Single Operator NC valve
G 1 1/2"	Internal	69A-C3-DRA-RA	69A-A3-DRA-RA
G 2"		69A-C3-ERA-RA	69A-A3-ERA-RA
G 2 1/2"		69A-C3-FRA-RA	69A-A3-FRA-RA
G 1 1/2"	External	69A-C3-DRB-RE	69A-A3-DRB-RE
G 2"		69A-C3-ERB-RE	69A-A3-ERB-RE
G 2 1/2"		69A-C3-FRB-RE	69A-A3-FRB-RE

DOUBLE OPERATOR

Port size	Double Operator NO valve	Double Operator NC valve
G 1 1/2"	69A-D4-DRB-RA	69A-B4-DRB-RA
G 2"	69A-D4-ERB-RA	69A-B4-ERB-RA
G 2 1/2"	69A-D4-FRB-RA	69A-B4-FRB-RA

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Supply pressure:	Internal pilot: 1,3 to 10 bar External pilot: Vacuum to 10 bar
Air signal 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 :	46,5 mm
Flow :	60000 Nl/min (Cv 60.0)



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

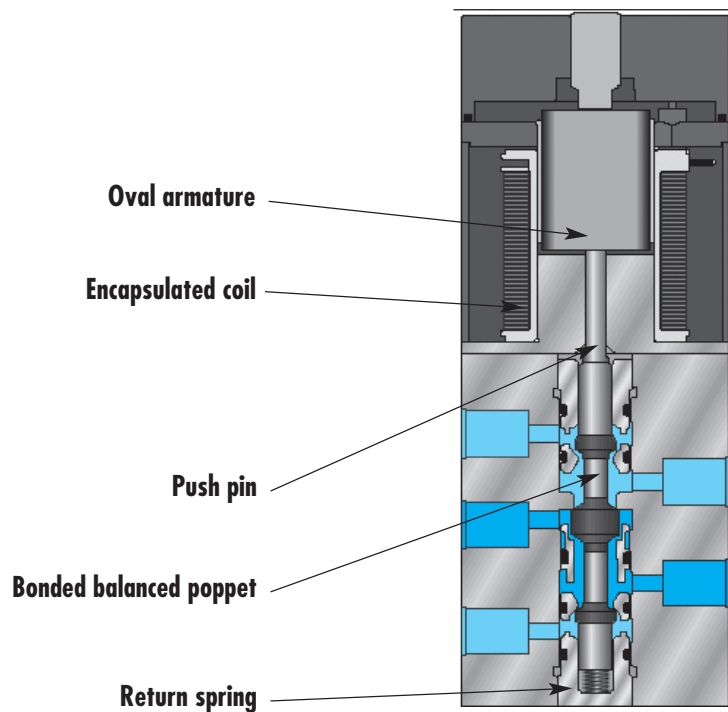
(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

Direct solenoid and solenoid pilot operated valves 6 mm valve

Individual mounting

Inline



SERIES FEATURES

- Patented high force MACSOLENOID® for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- 6 mm direct operating valve.
- Very fast response times.



Direct solenoid and solenoid pilot operated valves 6 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2	M3	22 to 35 NI/min	Inline

OPERATIONAL BENEFITS

1. 6mm valve direct solenoid operated
2. Balanced poppet, immune to pressure variations
3. Short stroke with high flow
4. Patented solenoid develops high shifting forces
5. Low wattage solenoids
6. Powerful return spring
7. Extremely fast response times (consult factory)



HOW TO ORDER

Port size	Valve
M3	
M3	41A-AAA-Txxx-xxx

SOLENOID OPERATOR ➤

T **xxx-xxx***

XX Voltage	X Lead wire length	X Manual operator	XX Electrical connection
DC 24V=/1.8W	A 45 cm	0 No operator	BA Flying leads
DD 24V=/2.5W	B 60 cm	1 Non locking recessed	
DE 24V=/3.0W	C 90 cm	3 Non locking extended	
DF 24V=/4.0W			
DJ 12V=/1.8W			
DK 12V=/2.5W			
DL 12V=/3.0W			
DM 12V=/4.0W			

* Other options available, see page options.



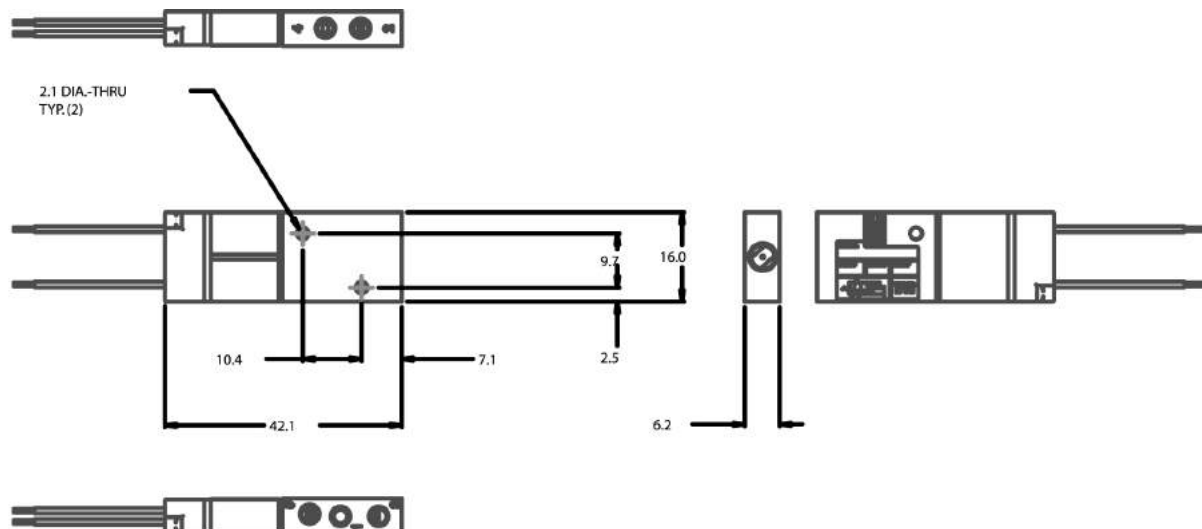
100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	Up to 35 Nl/min (Cv 0.035)
Coil :	Class A wires – continuous duty
Voltage range :	15% to +10%
Power :	4.0W, 3.0W, 2.5W, 1.8W
Options :	• NPTF threads

DIMENSIONS

Dimensions shown are metric (mm)



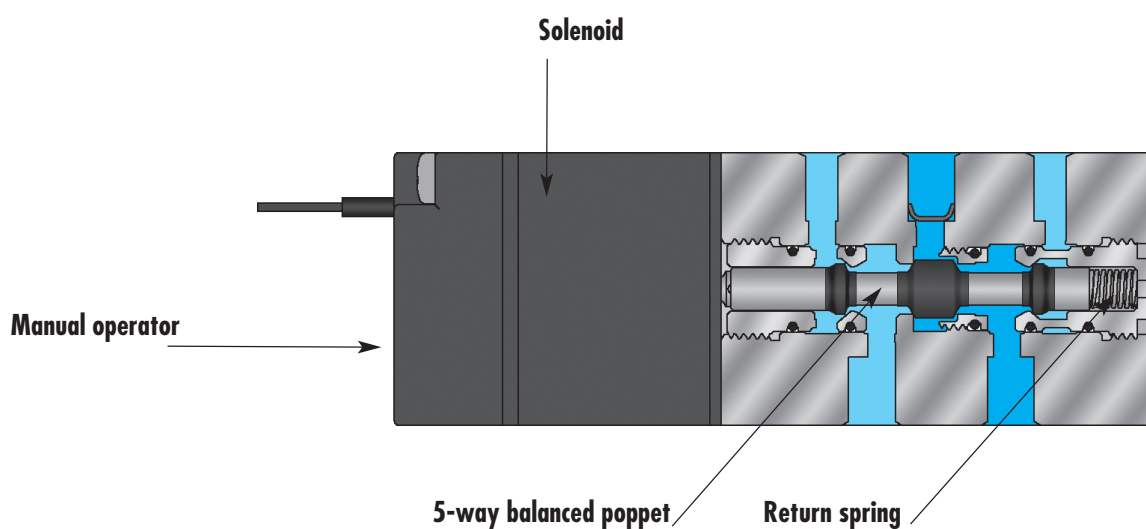
Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ➤ **T XX X - X XX**
1 2 3 4

1. VOLTAGE		3. MANUAL OPERATOR	
T XX X - XXX	VOLTAGE	T XX X - XXX	MANUAL OPERATOR
DC	24 VDC (1.8W)	0	No operator
DD	24 VDC (2.5W)	1	Recessed non-locking
DE	24 VDC (3.0W)	3	Extended non-locking
DF	24 VDC (4.0W)		
DJ	12 VDC (1.8W)	4. ELECTRICAL CONNECTION	
DK	12 VDC (2.5W)	T XX X - XXX	ELECTRICAL CONNECTION
DL	12 VDC (3.0W)	BA	Flying leads
DM	12 VDC (4.0W)		
FA*	24 VDC (60W)		
FB*	24 VDC (90W)		
FC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT			
T XX X - XXX	WIRE LENGHT		
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"		

Individual mounting

Inline



SERIES FEATURES

- 8mm valve, direct solenoid operated.
- Balanced poppet, immune to variations of pressure.
- Short stroke with high flow.
- Patented solenoid, for fastest possible response times.
- Powerful return spring.
- Flow is specially adapted on each valve.
- Manual operator standard on all valves.



Direct solenoid and solenoid pilot operated valves

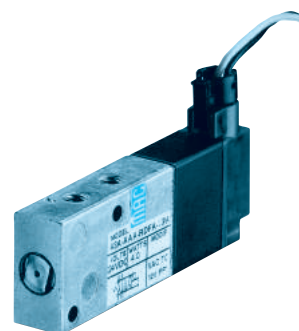
Function Port size Flow [Max] Individual mounting

5/2 M3 70 NI/min

Inline

OPERATIONAL BENEFITS

1. 8mm direct solenoid operated valve
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 each valve



HOW TO ORDER

Port size	Valve
M3	43A-AAA-RXXX-XXX



SOLENOID OPERATOR ►

R XXX-XXX*

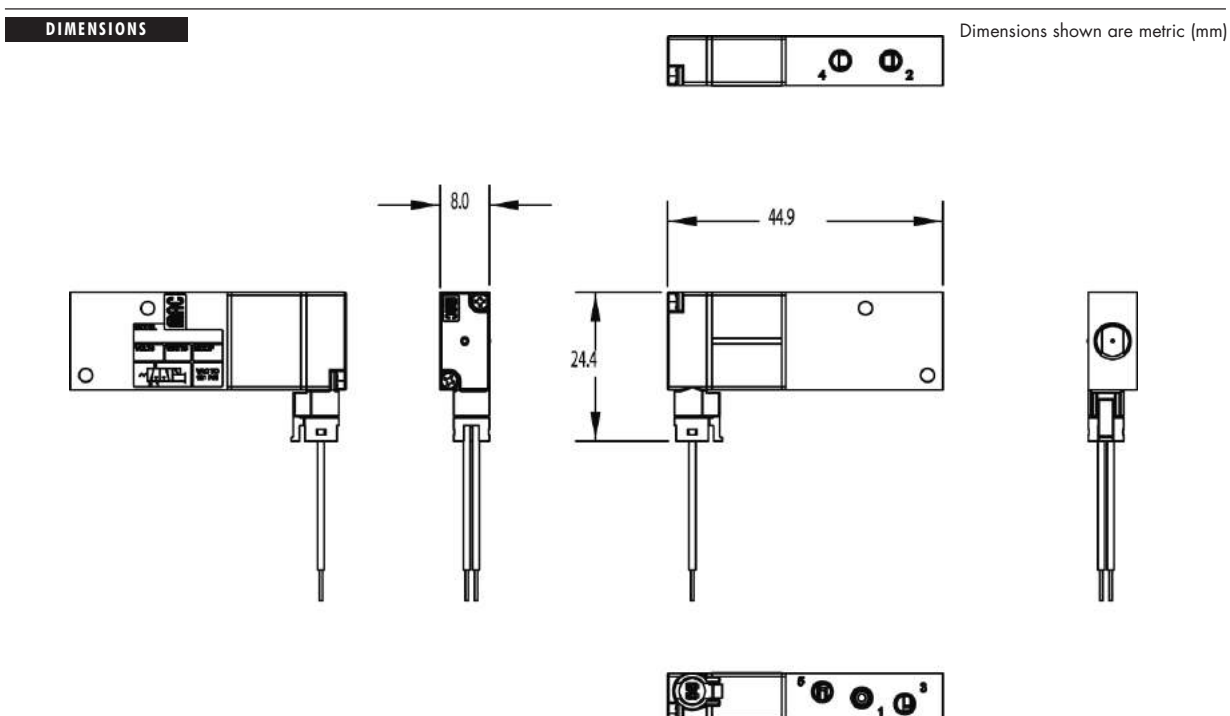
XX Voltage	X Lead wire length	X Manual operator	XX Electrical connection
DC 24V=/1.8W	0* No lead wire	0 No operator	BA Flying leads
DD 24V=/2.5W	A 45 cm	1 Non locking recessed	BB Flying leads with LED
DF 24V=/4.0W	B 60 cm	3 Non locking extended	RA Mini JAC solenoid plug-in
DJ 12V=/1.8W	C 90 cm		RB Mini JAC solenoid plug-in with LED
DK 12V=/2.5W			TA JST solenoid plug-in
DM 12V=/4.0W			TB JST solenoid plug-in with LED

* Other options available, see page options.



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 :	1,6 mm
Flow (at 6 bar, ΔP=1bar) :	4,0 W: 70 NI/min (0.7 cv) – 3,0 W: 50 NI/min (0.5cv) – 2,5 W: 40 NI/min (0.4cv) – 1,8 W: 30 NI/min (0.3cv)
Voltage range :	-15% to +10% of nominal voltage
Power :	4,0 W – 3,0 W – 2,5 W – 1,8 W

Options : • NPTF threads



Codification table for voltages / Manual operators / Electrical connections

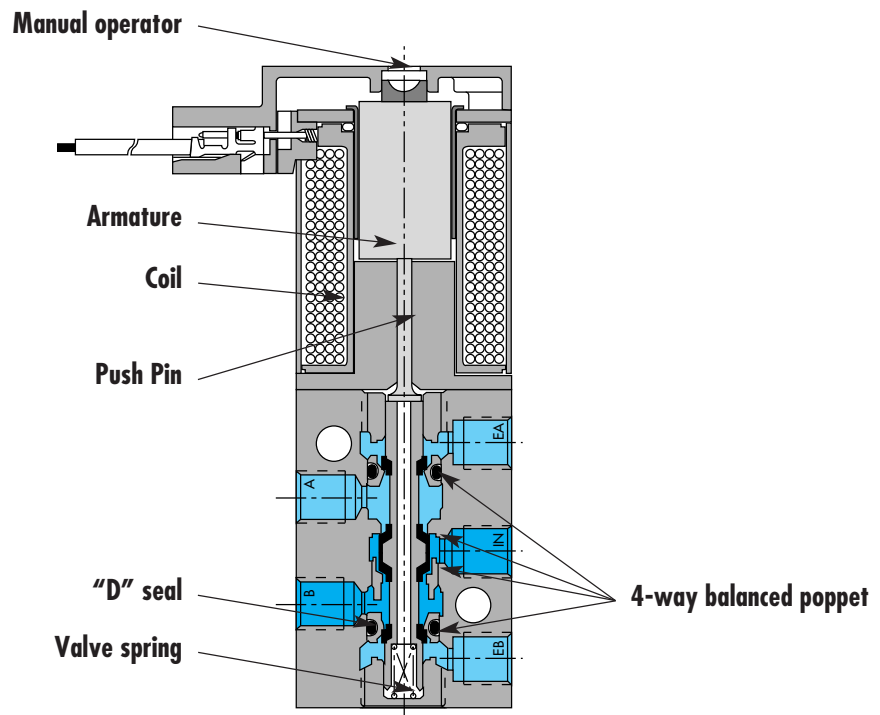
VALVE CODE ► **R XX X - X XX**
1 2 3 4

1. VOLTAGE		3. MANUAL OPERATOR	
R XX X - XXX	VOLTAGE	R XX X - XXX	MANUAL OPERATOR
DB	24 VDC (1.0W)	0	No operator
DC	24 VDC (1.8W)	1	Non-locking recessed
DD	24 VDC (2.5W)	3	Non-locking extended
DE	24 VDC (3.0W)		
DF	24 VDC (4.0W)		
DH	12 VDC (1.0W)		
DJ	12 VDC (1.8W)		
DK	12 VDC (2.5W)		
DL	12 VDC (3.0W)		
DM	12 VDC (4.0W)		
EA*	24 VDC (60W)		
EB*	24 VDC (90W)		
EC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT		4. ELECTRICAL CONNECTION	
R XX X - XXX	WIRE LENGHT	ELECTRICAL CONNECTION FOR NON PLUG-IN VALVES	
0*	No lead wire	R XX X - XXX	
A	45 cm - 18"	BA	Flying leads
B	60 cm - 24"	BB	Flying leads with LED
C	90 cm - 36"	BC	Flying leads with MOV
D	120 cm - 48"	BD	Flying leads with LED and MOV
E	180 cm - 72"	DA	Base plug-in
F	240 cm - 96"	DB	Base plug-in with LED
G	300 cm - 120"	DC	Base plug-in with MOV
H	365 cm - 144"	DD	Base plug-in with LED and MOV
P	Base plug-in	RA	Mini JAC solenoid
* Not available for flying leads connector		RB	Mini JAC solenoid with LED
		RC	Mini JAC solenoid with MOV
		RD	Mini JAC solenoid with LED and MOV
		TA	JST solenoid plug-in
		TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
		ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
		R XX X - XXX	
		PA	Base plug-in
		PB	Base plug-in with light
		PC	Base plug-in with MOV
		PD	Base plug-in with light and MOV

Direct solenoid and solenoid pilot operated valves

Individual mounting

Inline



SERIES FEATURES

- High force MACSOLENOID®.
- 10mm direct operated.
- # 10-32 or M5 ports.
- Rated for lubricated or non-lubricated service.



Direct solenoid and solenoid pilot operated valves

Function Port size Flow [Max] Individual Mounting

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	Model number	Model number For use with external flow controls
M5	44C-ABA-G xxx-xxx	44C-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	BA Flying leads
DC 24 V=/1,8W	B 60 cm	2 Locking	BT Flying leads with light
DD 24 V=/2,5W			GA MAC JAC Solenoid plug-in
DF 24 V=/4,0W			KA Mini connector
			KT Mini connector with light

* Other options available, see page options.

TECHNICAL DATA

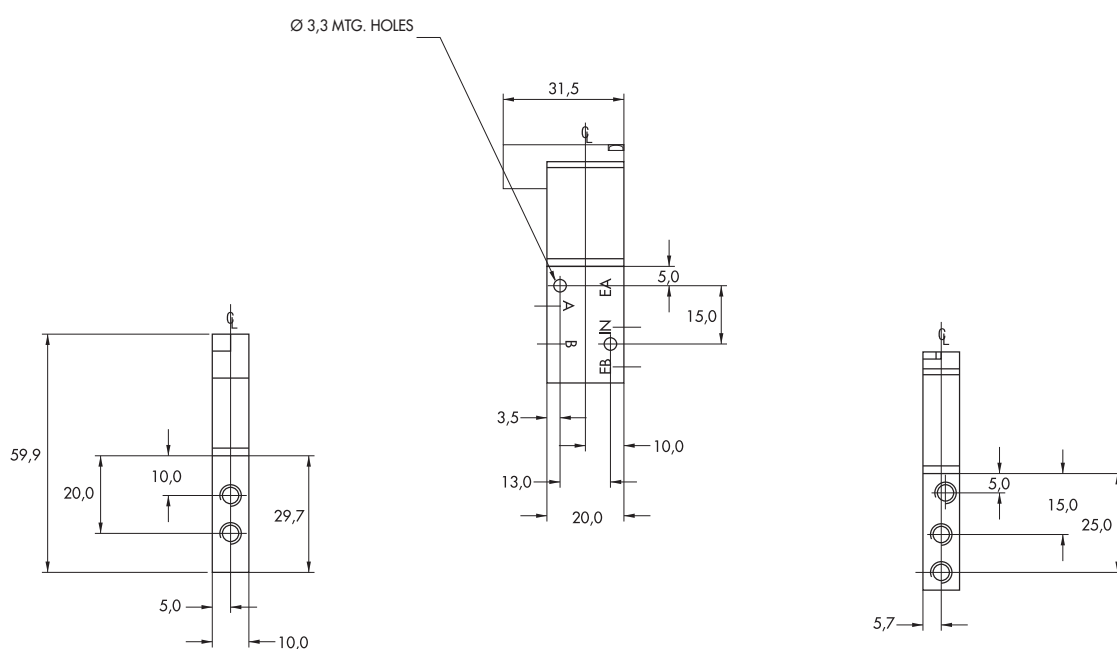
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	1,8 mm
Flow (at 6 bar, $\Delta P=1\text{bar}$) :	4 W : 100 NL/min (Cv 0,10) – 2,5 W : 80 NL/min (Cv 0,08) – 1,8 W : 60 NL/min (Cv 0,06) – 1,0W : 50 NL/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)



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ►

G XX X-X XX
1 2 3 4

1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V~/1,0W	
DC	24V~/1,8W	
DD	24V~/2,5W	
DE	24V~/3,0W	
DF	24V~/4,0W	
DG	12V~/1,0W	
DJ	12V~/1,8W	
DK	12V~/2,5W	
DM	12V~/3,0W	
DN	12V~/4,0W	
DR	6V~/1,8W	
DS	6V~/3,0W	
EB	48V~/1,8W	
EC	48V~/3,0W	
ED	120V~/2,5W	
GD	12V~/0,5W	34 series only
GE	24V~/0,5W	34 series only

2. WIRE LENGTH	
G-XX X-X XX	WIRE LENGTH
0	No lead wires (used only with "KJ" & "KM" connectors)
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
G	305 cm – 120" coil leads
H	366 cm – 144" coil leads
1	45 cm – 18" base leads
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

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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

ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

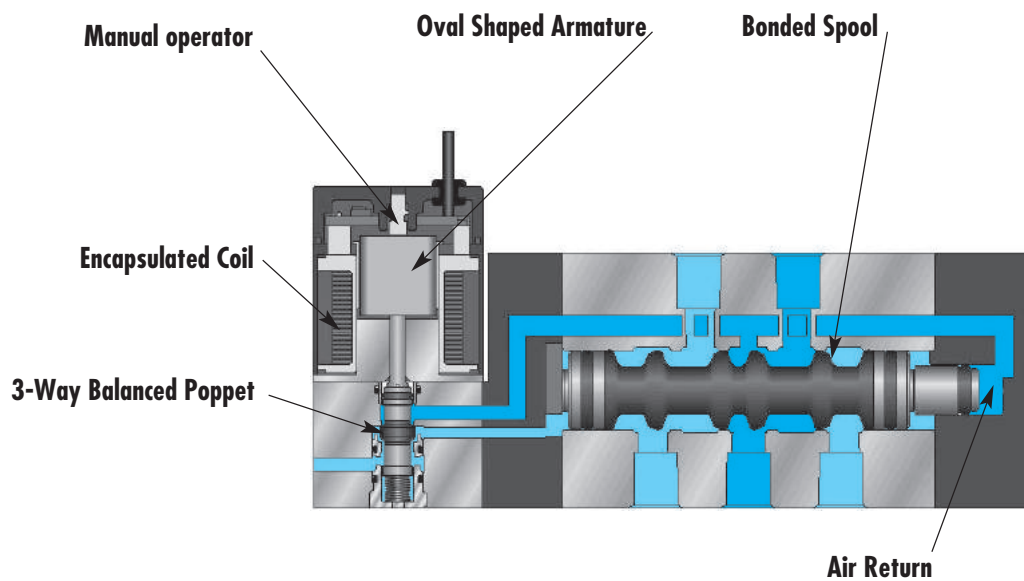
Direct solenoid and solenoid pilot operated valves 8 mm valve

Individual mounting

Inline	Sub-base Non plug-in
--------	-------------------------

Manifold mounting

Manifold-base Non plug-in



SERIES FEATURES

- Patented high force MACSOLENOID® for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- 8 mm solenoid pilot operated valve.
- Very fast and repeatable response times.

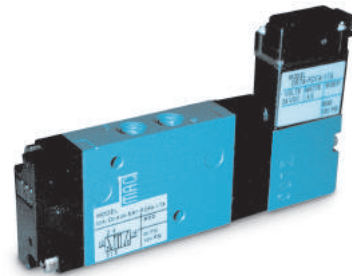


Direct solenoid and solenoid pilot operated valves 8 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2	M3,M5	230 NI/min	Inline

OPERATIONAL BENEFITS

1. 8 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	Single solenoid	Double solenoid
M3	Internal	23A-A1-C00-E XX -R XXX - XXX	23A-B1-C00-E XX -R XXX - XXX
	External	23A-A4-C00-E XX -R XXX - XXX	23A-B4-C00-E XX -R XXX - XXX
M5	Internal	23A-A1-B00-E XX -R XXX - XXX	23A-B1-B00-E XX -R XXX - XXX
	External	23A-A4-B00-E XX -R XXX - XXX	23A-B4-B00-E XX -R XXX - XXX

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY)

Port size	Pilot air	Single solenoid	Double solenoid
M3	Internal from port #3	23A-C2-C00-E XX -R XXX - XXX	23A-D2-C00-E XX -R XXX - XXX
	Internal from port #5	23A-C3-C00-E XX -R XXX - XXX	23A-D3-C00-E XX -R XXX - XXX
M5	Internal from port #3	23A-C2-B00-E XX -R XXX - XXX	23A-D2-B00-E XX -R XXX - XXX
	Internal from port #5	23A-C3-B00-E XX -R XXX - XXX	23A-D3-B00-E XX -R XXX - XXX

SOLENOID OPERATOR ➤

E **XX**-R**XXX**-**XXX***

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
M2	Muffled exhaust	DB	24VDC (1.0W)	0*	No lead wire	0	No manual operator	BA	Flying leads
P2	Piped exhaust (M3)	DC	24VDC (1.8W)	A	45 cm	1	Recessed non locking	BB	Flying leads w/ LED
		DD	24VDC (2.5W)	B	60 cm	3	Extended non locking	RA	Mini JAC solenoid plug-in
		DE	24VDC (3.0W)	C	90 cm			RB	Mini JAC sol. plug-in w/ LED
		DF	24VDC (4.0W)	* Not available for flying lead connectors.				TA	JST solenoid plug-in
		DH	12VDC (1.0W)	Note: For pilot exhaust out main exhaust, Mod. 0353 is required				TB	JST sol. plug-in w/ LED
		DJ	12VDC (1.8W)						
		DK	12VDC (2.5W)						
		DL	12VDC (3.0W)						
		DM	12VDC (4.0W)						

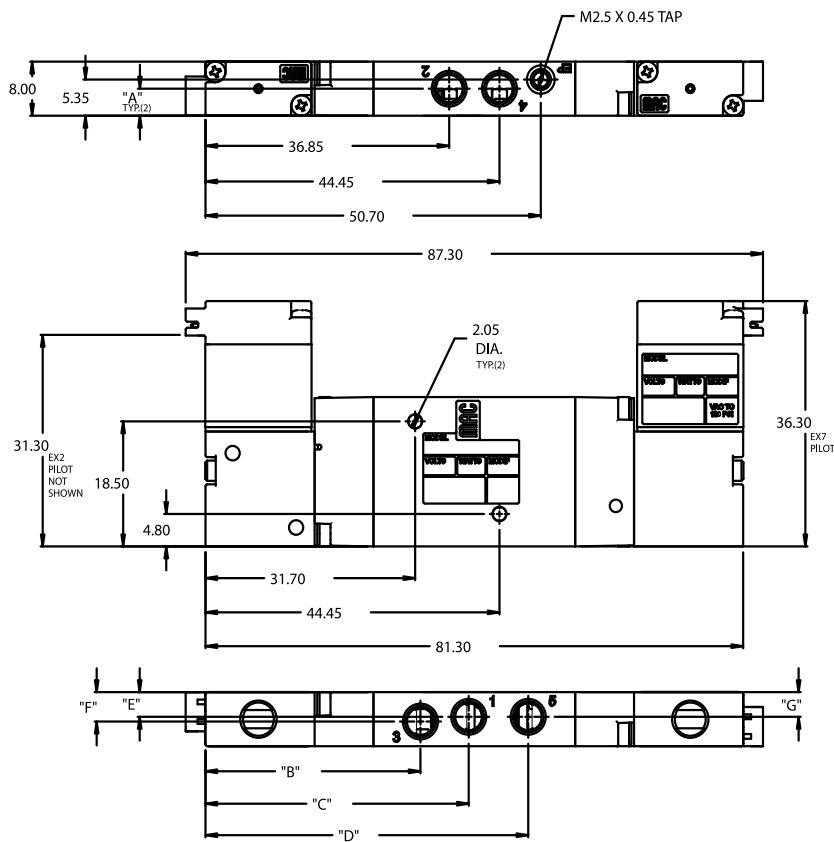
* Other options available, see page options.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: Single solenoid air return: 2 to 8 bar Single solenoid spring return: 2,7 to 8 bar Double solenoid: 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
Flow :	230 Nl/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

DIMENSIONS

Dimensions shown are metric (mm)



DIM	M3 X 0.5 PORT OPTION	#10-32 OR M5 PORT OPTION
A	3.20	4.00
B	33.00	32.50
C	40.60	39.80
D	48.20	48.80
E	4.00	3.65
F	4.00	4.35
G	4.00	3.65



Direct solenoid and solenoid pilot operated valves 8 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2	M3,M5	230 NI/min	Sub-base non plug-in

OPERATIONAL BENEFITS

1. 8 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times

HOW TO ORDER

SINGLE PRESSURE MODELS



Port size	Pilot air	Single solenoid	Double solenoid
Valve less base	Internal	23A-AD-000-Exx-Rxxx-xxx	23A-BD-000-Exx-Rxxx-xxx
	External	23A-AE-000-Exx-Rxxx-xxx	23A-BE-000-Exx-Rxxx-xxx
M3	Internal	23A-AD-C1B-Exx-Rxxx-xxx	23A-BD-C1B-Exx-Rxxx-xxx
	External	23A-AE-C1B-Exx-Rxxx-xxx	23A-BE-C1B-Exx-Rxxx-xxx
M5	Internal	23A-AD-B1B-Exx-Rxxx-xxx	23A-BD-B1B-Exx-Rxxx-xxx
	External	23A-AE-B1B-Exx-Rxxx-xxx	23A-BE-B1B-Exx-Rxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY)

Port size	Pilot air	Single solenoid	Double solenoid
Valve less base	Internal from port #3	23A-CJ-000-Exx-Rxxx-xxx	23A-DJ-000-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-000-Exx-Rxxx-xxx	23A-DK-000-Exx-Rxxx-xxx
M3	Internal from port #3	23A-CJ-C1B-Exx-Rxxx-xxx	23A-DJ-C1B-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-C1B-Exx-Rxxx-xxx	23A-DK-C1B-Exx-Rxxx-xxx
M5	Internal from port #3	23A-CJ-B1B-Exx-Rxxx-xxx	23A-DJ-B1B-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-B1B-Exx-Rxxx-xxx	23A-DK-B1B-Exx-Rxxx-xxx

SOLENOID OPERATOR ➤

E **XX-Rxxx-xxx****

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
M2	Muffled exhaust	DB	24VDC (1.0W)	0*	No lead wire	0	No manual operator	BA	Flying leads
P2	Piped exhaust (M3)	DC	24VDC (1.8W)	A	45 cm	1	Recessed non locking	BB	Flying leads w/ LED
		DD	24VDC (2.5W)	B	60 cm	3	Extended non locking	RA	Mini JAC solenoid plug-in
		DE	24VDC (3.0W)	C	90 cm			RB	Mini JAC sol. plug-in w/ LED
		DF	24VDC (4.0W)					TA	JST solenoid plug-in
		DH	12VDC (1.0W)					TB	JST sol. plug-in w/ LED
		DJ	12VDC (1.8W)						
		DK	12VDC (2.5W)						
		DL	12VDC (3.0W)						
		DM	12VDC (4.0W)						

* Not available for flying lead connectors.

Note: For pilot exhaust out main exhaust, Mod. 0353 is required.
Must use M7 or P7 pilot type.

** Other options available, see page options.

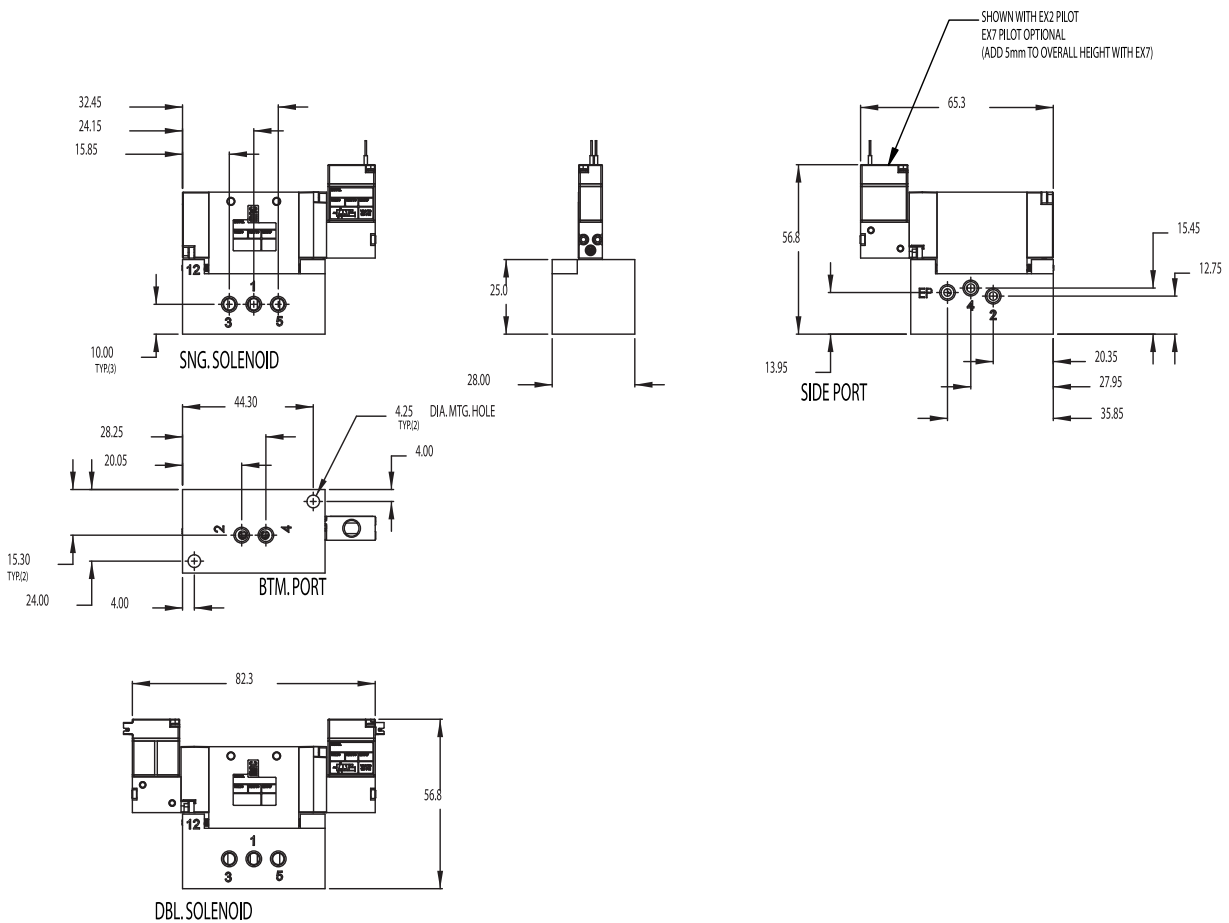
OPTIONS

23A-XX-XxX-Exx-Rxxx-xxx

- 1 Individual base – Side ports
- 2 Individual base – Bottom ports (no side ports)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: Single solenoid air return: 2 to 8 bar Single solenoid spring return: 2,7 to 8 bar Double solenoid: 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
Flow :	230 Nl/min (2.3 Cv)
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

DIMENSIONS Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves 8 mm valve

Function	Port size	Flow [Max]	Manifold mounting
5/2	M3,M5	230 NI/min	Manifold base non plug-in

OPERATIONAL BENEFITS

1. 8 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	Single solenoid	Double solenoid
Valve only	Internal	23A-AD-000-Exx-Rxxx-xxx	23A-BD-000-Exx-Rxxx-xxx
	External	23A-AE-000-Exx-Rxxx-xxx	23A-BE-000-Exx-Rxxx-xxx
M3	Internal	23A-AD-CAB-Exx-Rxxx-xxx	23A-BD-CAB-Exx-Rxxx-xxx
	External	23A-AE-CAB-Exx-Rxxx-xxx	23A-BE-CAB-Exx-Rxxx-xxx
M5	Internal	23A-AD-BAB-Exx-Rxxx-xxx	23A-BD-BAB-Exx-Rxxx-xxx
	External	23A-AE-BAB-Exx-Rxxx-xxx	23A-BE-BAB-Exx-Rxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY)

Port size	Pilot air	Single solenoid	Double solenoid
Valve only	Internal from port #3	23A-CJ-000-Exx-Rxxx-xxx	23A-DJ-000-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-000-Exx-Rxxx-xxx	23A-DK-000-Exx-Rxxx-xxx
M3	Internal from port #3	23A-CJ-CAB-Exx-Rxxx-xxx	23A-DJ-CAB-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-CAB-Exx-Rxxx-xxx	23A-DK-CAB-Exx-Rxxx-xxx
M5	Internal from port #3	23A-CJ-BAB-Exx-Rxxx-xxx	23A-DJ-BAB-Exx-Rxxx-xxx
	Internal from port #5	23A-CK-BAB-Exx-Rxxx-xxx	23A-DK-BAB-Exx-Rxxx-xxx

SOLENOID OPERATOR ►

E **XX-Rxxx-xxx** **

XX Pilot type	XX Voltage	X Lead wire length	X Manual operator	XX Electrical connection
M2 Muffled exhaust	DB 24VDC (1.0W)	0* No lead wire	0 No manual operator	BA Flying leads
P2 Piped exhaust (M3)	DC 24VDC (1.8W)	A 45 cm	1 Recessed non locking	BB Flying leads w/ LED
	DD 24VDC (2.5W)	B 60 cm	3 Extended non locking	RA Mini JAC solenoid plug-in
	DE 24VDC (3.0W)	C 90 cm		RB Mini JAC sol. plug-in w/ LED
	DF 24VDC (4.0W)			TA JST solenoid plug-in
	DH 12VDC (1.0W)			TB JST sol. plug-in w/ LED
	DJ 12VDC (1.8W)			
	DK 12VDC (2.5W)			
	DL 12VDC (3.0W)			
	DM 12VDC (4.0W)			

* Not available for flying lead connectors.
Note: For pilot exhaust out main exhaust, Mod. 0353 is required.
Must use M7 or P7 pilot type.

** Other options available, see page options.

OPTIONS

23A-XX-XxX-Exx-Rxxx-xxx

- A Manifold base – Side cylinder ports
- B Manifold base – Bottom cylinder ports (no side cylinder ports)

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ➤ **EXX-R XX X - X XX**
1 2 3 4 5

1. PILOT OPTION		4. MANUAL OPERATOR	
E XX - RXX X- X XX VOLTAGE		E XX - RXX X- X XX MANUAL OPERATOR	
M2	12mm - muffled exhaust	0	No operator
P2	12mm - piped exhaust (M3)	1	Non-locking recessed
M7	17mm - muffled exhaust	3	Non-locking extended
P7	17mm - piped exhaust (M3)		
2. VOLTAGE		5. ELECTRICAL CONNECTION	
E XX - RXX X- X XX VOLTAGE		ELECTRICAL CONNECTIONS FOR NON PLUG-IN VALVES	
E XX - RXX X- X XX		E XX - RXX X- X XX	
DB	24 VDC (1.0W)	BA	Flying leads
DC	24 VDC (1.8W)	BB	Flying leads with LED
DD	24 VDC (2.5W)	BC	Flying leads with MOV
DE	24 VDC (3.0W)	BD	Flying leads with LED and MOV
DF	24 VDC (4.0W)	RA	Mini JAC solenoid plug-in
DH	12 VDC (1.0W)	RB	Mini JAC solenoid plug-in with LED
DJ	12 VDC (1.8W)	RC	Mini JAC solenoid plug-in with MOV
DK	12 VDC (2.5W)	RD	Mini JAC solenoid plug-in with LED and MOV
DL	12 VDC (3.0W)	TA	JST solenoid plug-in
DM	12 VDC (4.0W)	TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
3. WIRE LENGHT		ELECTRICAL CONNECTIONS FOR PLUG-IN VALVES	
E XX - RXX X- X XX WIRE LENGHT		E XX - RXX X- X XX	
0*	No lead wire	FA	Base plug-in
A	45 cm - 18"	FB	Base plug-in with LED
B	60 cm - 24"	FC	Base plug-in with MOV
C	90 cm - 36"	FD	Base plug-in with LED and MOV
D	120 cm - 48"		
E	180 cm - 72"		
F	240 cm - 96"		
G	300 cm - 120"		
H	365 cm - 144"		
P	Base plug-in (24 Series plug-in)		

* Not available for flying leads connector

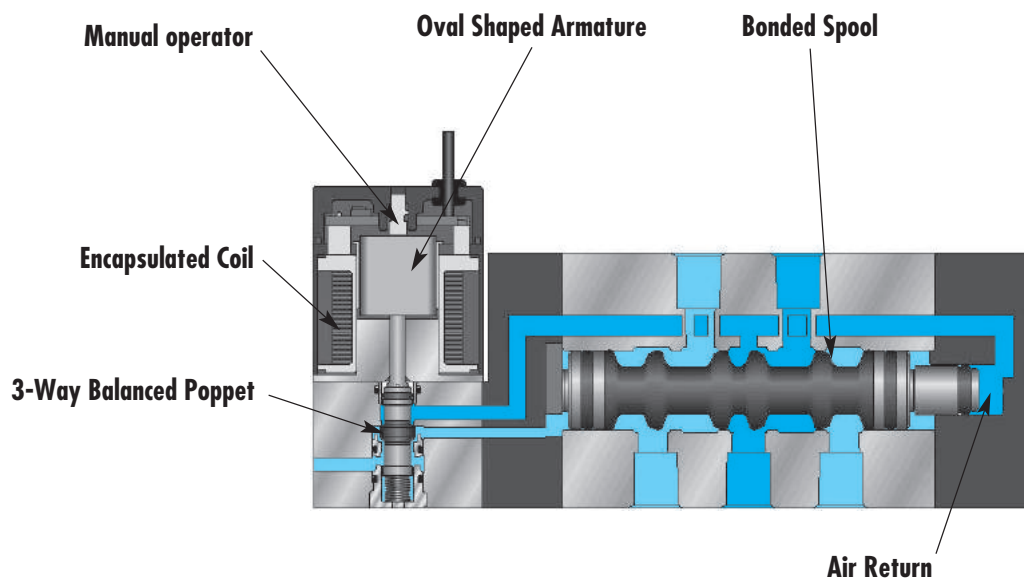
Direct solenoid and solenoid pilot operated valves 10 mm valve

Individual mounting

Inline	Sub-base Non plug-in	Sub-base Plug-in
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Manifold mounting

Manifold-base Non plug-in	Manifold-base Plug-in
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SERIES FEATURES

- Patented high force MACSOLENOID® for fastest possible response times.
- Bonded balanced poppet for high flow, precise repeatability, and consistent operation.
- Extremely high cycle rate capability.
- Use on lube or non-lube service.
- 10 mm solenoid pilot operated valve.
- Very fast and repeatable response times.



Direct solenoid and solenoid pilot operated valves 10 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2, 5/3	M5	250 NI/min	Inline

OPERATIONAL BENEFITS

1. 10 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response time



HOW TO ORDER

SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed center	5/3 Open center
M5	Internal	24A-A1-B00-Exx-Rxxx-xxx	24A-B1-B00-Exx-Rxxx-xxx	24A-E1-B00-Exx-Rxxx-xxx	24A-F1-B00-Exx-Rxxx-xxx
	External	24A-A4-B00-Exx-Rxxx-xxx	24A-B4-B00-Exx-Rxxx-xxx	24A-E4-B00-Exx-Rxxx-xxx	24A-F4-B00-Exx-Rxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure center
M5	Internal from port #3	24A-C2-B00-Exx-Rxxx-xxx	24A-D2-B00-Exx-Rxxx-xxx	24A-G2-B00-Exx-Rxxx-xxx
	Internal from port #5	24A-C3-B00-Exx-Rxxx-xxx	24A-D3-B00-Exx-Rxxx-xxx	24A-G3-B00-Exx-Rxxx-xxx

SOLENOID OPERATOR ➤

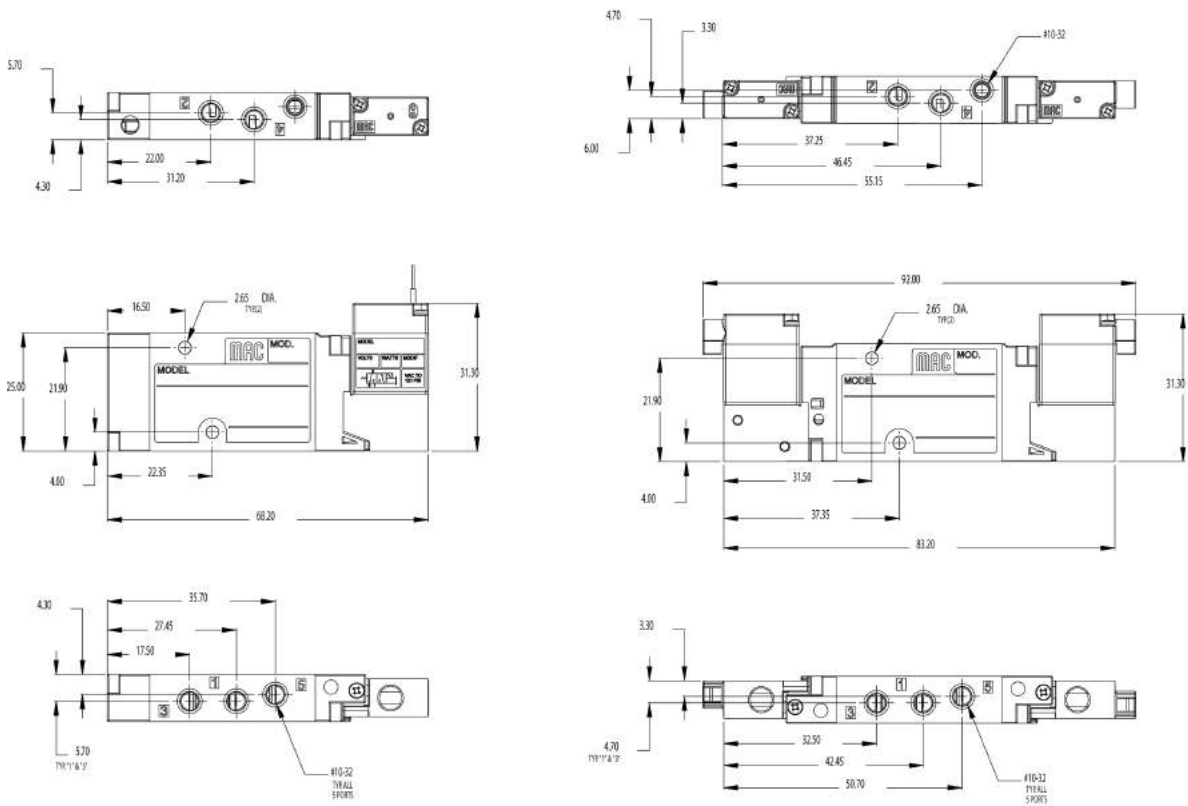
E **XX-RXXX-XXX****

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection				
M2	Muffled exhaust	DB	24V=/1.0W	0*	No lead wire	0	No manual operator	BA	Flying leads				
P2	Piped exhaust (M3)	DC	24V=/1.8W	A	45 cm	1	Recessed non locking	BB	Flying leads w/ LED				
		DD	24V=/2.5W	B	60 cm	3	Extended non locking	RA	Mini JAC solenoid plug-in				
		DF	24V=/4.0W	C	90 cm			RB	Mini JAC sol. plug-in w/ LED				
		DH	12V=/1.0W	* Not available for flying lead connectors					TA	JST solenoid plug-in			
		DJ	12V=/1.8W									TB	JST sol. plug-in w/ LED
		DK	12V=/2.5W										
		DM	12V=/4.0W										

** Other options available, see page options.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	2 position internal pilot: Single solenoid: 2 to 8 bar Double solenoid: 1.3 to 8 bar 2/3 position external pilot: vacuum to 8 bar 3 position internal pilot: 2.7 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Flow :	0.25 Cv / 250 Nl/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 2.5W, 1.8W, 1.0W

DIMENSIONS Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves 10 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2, 5/3	M5, M7	370 NI/min	Sub-base non plugin

OPERATIONAL BENEFITS

1. 10 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS (SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed center	5/3 Open center
Valve only	Internal	24A-AD-000-Exx-Rxxx-xxx	24A-B1-B00-Exx-Rxxx-xxx	24A-ED-000-Exx-Rxxx-xxx	24A-FD-000-Exx-Rxxx-xxx
	External	24A-AE-000-Exx-Rxxx-xxx	24A-BE-000-Exx-Rxxx-xxx	24A-EE-000-Exx-Rxxx-xxx	24A-FE-000-Exx-Rxxx-xxx
M5	Internal	24A-AD-B1B-Exx-Rxxx-xxx	24A-BD-B1B-Exx-Rxxx-xxx	24A-ED-B1B-Exx-Rxxx-xxx	24A-FD-B1B-Exx-Rxxx-xxx
	External	24A-AE-B1B-Exx-Rxxx-xxx	24A-BE-B1B-Exx-Rxxx-xxx	24A-EE-B1B-Exx-Rxxx-xxx	24A-FE-B1B-Exx-Rxxx-xxx
M7	Internal	24A-AD-C1B-Exx-Rxxx-xxx	24A-BD-C1B-Exx-Rxxx-xxx	24A-ED-C1B-Exx-Rxxx-xxx	24A-FD-C1B-Exx-Rxxx-xxx
	External	24A-AE-C1B-Exx-Rxxx-xxx	24A-BE-C1B-Exx-Rxxx-xxx	24A-EE-C1B-Exx-Rxxx-xxx	24A-FE-C1B-Exx-Rxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY – SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure center
Valve only	Internal from port #3	24A-CJ-000-Exx-Rxxx-xxx	24A-DJ-000-Exx-Rxxx-xxx	24A-GJ-000-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-000-Exx-Rxxx-xxx	24A-DK-000-Exx-Rxxx-xxx	24A-GK-000-Exx-Rxxx-xxx
M5	Internal from port #3	24A-CJ-B1B-Exx-Rxxx-xxx	24A-DJ-B1B-Exx-Rxxx-xxx	24A-GJ-B1B-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-B1B-Exx-Rxxx-xxx	24A-DK-B1B-Exx-Rxxx-xxx	24A-GK-B1B-Exx-Rxxx-xxx
M7	Internal from port #3	24A-CJ-C1B-Exx-Rxxx-xxx	24A-DJ-C1B-Exx-Rxxx-xxx	24A-GJ-C1B-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-C1B-Exx-Rxxx-xxx	24A-DK-C1B-Exx-Rxxx-xxx	24A-GK-C1B-Exx-Rxxx-xxx

SOLENOID OPERATOR ➤

E **XX-Rxxx-xxx****

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection				
M2	Muffled exhaust	DB	24V=/1.0W	0*	No lead wire	0	No manual operator	BA	Flying leads				
P2	Piped exhaust (M3)	DC	24V=/1.8W	A	45 cm	1	Recessed non locking	BB	Flying leads w/ LED				
		DD	24V=/2.5W	B	60 cm	3	Extended non locking	RA	Mini JAC solenoid plug-in				
		DF	24V=/4.0W	C	90 cm			RB	Mini JAC sol. plug-in w/ LED				
		DH	12V=/1.0W	* Not available for flying lead connectors					TA	JST solenoid plug-in			
		DJ	12V=/1.8W									TB	JST sol. plug-in w/ LED
		DK	12V=/2.5W										
		DM	12V=/4.0W										

** Other options available, see page options.

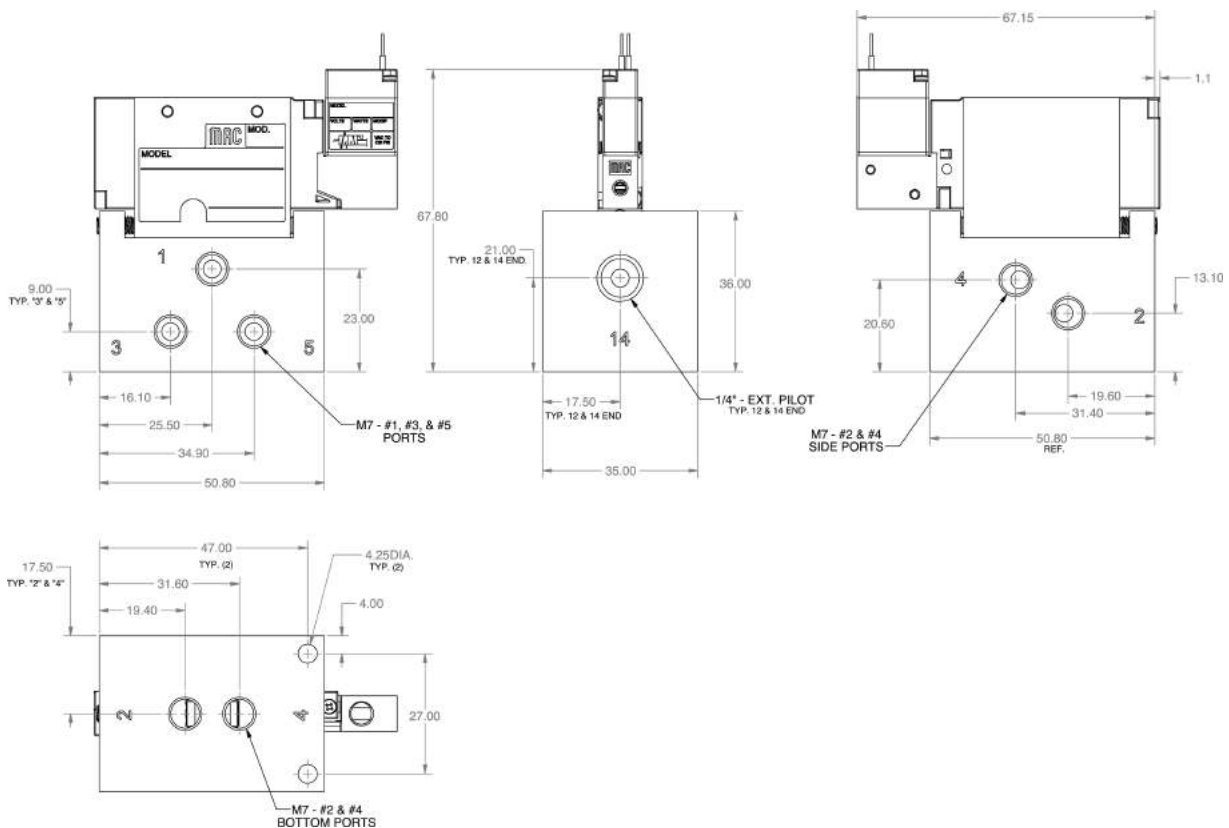
OPTIONS

24A-XX-XX-Exx-Rxxx-xxx

- 1 Individual base – Side ports
- 2 Individual base – Bottom ports (no side ports)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	2 position internal pilot: Single solenoid: 2 to 8 bar Double solenoid: 1.3 to 8 bar 2/3 position external pilot: vacuum to 8 bar 3 position internal pilot: 2.7 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Flow :	0.37 Cv / 370 Nl/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

DIMENSIONS Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves 10 mm valve

Function	Port size	Flow [Max]	Individual mounting
5/2, 5/3	M5, M7	370 NI/min	Sub-base plug-in

OPERATIONAL BENEFITS

1. 10 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS (SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed center	5/3 Open center
Valve only	Internal	24A-AA-000-Exx-RxxP-xxx	24A-BA-000-Exx-RxxP-xxx	24A-EA-000-Exx-RxxP-xxx	24A-FA-000-Exx-RxxP-xxx
	External	24A-AB-000-Exx-RxxP-xxx	24A-BB-000-Exx-RxxP-xxx	24A-EB-000-Exx-RxxP-xxx	24A-FB-000-Exx-RxxP-xxx
M5	Internal	24A-AA-B1A-Exx-RxxP-xxx	24A-BA-B1A-Exx-RxxP-xxx	24A-EA-B1A-Exx-RxxP-xxx	24A-FA-B1A-Exx-RxxP-xxx
	External	24A-AB-B1A-Exx-RxxP-xxx	24A-BB-B1A-Exx-RxxP-xxx	24A-EB-B1A-Exx-RxxP-xxx	24A-FB-B1A-Exx-RxxP-xxx
M7	Internal	24A-AA-C1A-Exx-RxxP-xxx	24A-BA-C1A-Exx-RxxP-xxx	24A-EA-C1A-Exx-RxxP-xxx	24A-FA-C1A-Exx-RxxP-xxx
	External	24A-AB-C1A-Exx-RxxP-xxx	24A-BB-C1A-Exx-RxxP-xxx	24A-EB-C1A-Exx-RxxP-xxx	24A-FB-C1A-Exx-RxxP-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY – SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure center
Valve only	Internal from port #3	24A-CG-000-Exx-RxxP-xxx	24A-DG-000-Exx-RxxP-xxx	24A-GG-000-Exx-RxxP-xxx
	Internal from port #5	24A-CK-000-Exx-RxxP-xxx	24A-DH-000-Exx-RxxP-xxx	24A-GH-000-Exx-RxxP-xxx
M5	Internal from port #3	24A-CG-B1A-Exx-RxxP-xxx	24A-DG-B1A-Exx-RxxP-xxx	24A-GG-B1A-Exx-RxxP-xxx
	Internal from port #5	24A-CH-B1A-Exx-RxxP-xxx	24A-DH-B1A-Exx-RxxP-xxx	24A-GH-B1A-Exx-RxxP-xxx
M7	Internal from port #3	24A-CG-C1A-Exx-RxxP-xxx	24A-DG-C1A-Exx-RxxP-xxx	24A-GG-C1A-Exx-RxxP-xxx
	Internal from port #5	24A-CH-C1A-Exx-RxxP-xxx	24A-DH-C1A-Exx-RxxP-xxx	24A-GH-C1A-Exx-RxxP-xxx

SOLENOID OPERATOR ►

E **XX-RXXX-XXX***

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
M2	Muffled exhaust	DB	24V= / 1.0W	P	Base plug-in	0	No manual operator	FA	Base plug-in
P2	Piped exhaust (M3)	DC	24V= / 1.8W			1	Recessed non locking	FB	Base plug-in w/ LED
		DD	24V= / 2.5W			3	Extended non locking	FC	Base plug-in w/ MOV
		DF	24V= / 4.0W					FD	Base plug-in w/ MOV and LED
		DH	12V= / 1.0W						
		DJ	12V= / 1.8W						
		DK	12V= / 2.5W						
		DM	12V= / 4.0W						

* Other options available, see page options.

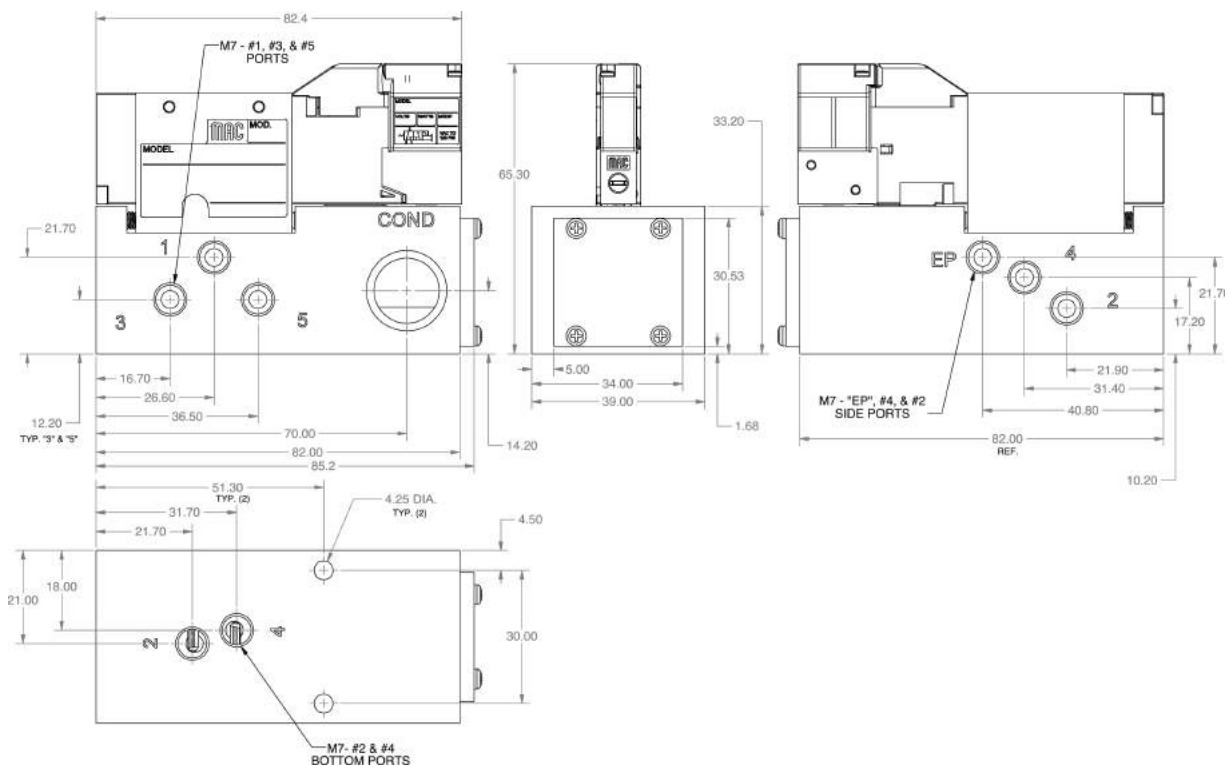
OPTIONS

24A-XX -XX-Exx-Rxxx-xxx

- 1 Individual base – Side ports
- 2 Individual base – Bottom ports (no side ports)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	2 position internal pilot: Single solenoid: 2 to 8 bar Double solenoid: 1.3 to 8 bar 2/3 position external pilot: vacuum to 8 bar 3 position internal pilot: 2.7 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Flow :	0.37 Cv / 370 Nl/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

DIMENSIONS Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves 10 mm valve

Function Port size Flow [Max] Manifold mounting

5/2, 5/3

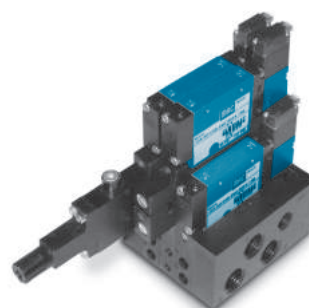
M5, M7

400 NI/min

Manifold base
non plugin

OPERATIONAL BENEFITS

1. 10 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS (SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed center	5/3 Open center
Valve only	Internal	24A-AD-000-Exx-Rxxx-xxx	24A-B1-B00-Exx-Rxxx-xxx	24A-ED-000-Exx-Rxxx-xxx	24A-FD-000-Exx-Rxxx-xxx
	External	24A-AE-000-Exx-Rxxx-xxx	24A-BE-000-Exx-Rxxx-xxx	24A-EE-000-Exx-Rxxx-xxx	24A-FE-000-Exx-Rxxx-xxx
M5	Internal	24A-AD-BAB-Exx-Rxxx-xxx	24A-BD-BAB-Exx-Rxxx-xxx	24A-ED-BAB-Exx-Rxxx-xxx	24A-FD-BAB-Exx-Rxxx-xxx
	External	24A-AE-BAB-Exx-Rxxx-xxx	24A-BE-BAB-Exx-Rxxx-xxx	24A-EE-BAB-Exx-Rxxx-xxx	24A-FE-BAB-Exx-Rxxx-xxx
M7	Internal	24A-AD-CAB-Exx-Rxxx-xxx	24A-BD-CAB-Exx-Rxxx-xxx	24A-ED-CAB-Exx-Rxxx-xxx	24A-FD-CAB-Exx-Rxxx-xxx
	External	24A-AE-CAB-Exx-Rxxx-xxx	24A-BE-CAB-Exx-Rxxx-xxx	24A-EE-CAB-Exx-Rxxx-xxx	24A-FE-CAB-Exx-Rxxx-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY – SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure center
Valve only	Internal from port #3	24A-CJ-000-Exx-Rxxx-xxx	24A-DJ-000-Exx-Rxxx-xxx	24A-GJ-000-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-000-Exx-Rxxx-xxx	24A-DK-000-Exx-Rxxx-xxx	24A-GK-000-Exx-Rxxx-xxx
M5	Internal from port #3	24A-CJ-BAB-Exx-Rxxx-xxx	24A-DJ-BAB-Exx-Rxxx-xxx	24A-GJ-BAB-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-BAB-Exx-Rxxx-xxx	24A-DK-BAB-Exx-Rxxx-xxx	24A-GK-BAB-Exx-Rxxx-xxx
M7	Internal from port #3	24A-CJ-CAB-Exx-Rxxx-xxx	24A-DJ-CAB-Exx-Rxxx-xxx	24A-GJ-CAB-Exx-Rxxx-xxx
	Internal from port #5	24A-CK-CAB-Exx-Rxxx-xxx	24A-DK-CAB-Exx-Rxxx-xxx	24A-GK-CAB-Exx-Rxxx-xxx

SOLENOID OPERATOR >

E XX-Rxxx-xxx**

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection					
M2	Muffled exhaust	DB	24V=/1.0W	0*	No lead wire	0	No manual operator	BA	Flying leads					
P2	Piped exhaust (M3)	DC	24V=/1.8W	A	45 cm	1	Recessed non locking	BB	Flying leads w/ LED					
		DD	24V=/2.5W	B	60 cm	3	Extended non locking	RA	Mini JAC solenoid plug-in					
		DF	24V=/4.0W	C	90 cm			RB	Mini JAC sol. plug-in w/ LED					
		DH	12V=/1.0W	* Not available for flying lead connectors					TA	JST solenoid plug-in w/ LED				
		DJ	12V=/1.8W										TB	JST sol. plug-in w/ LED
		DK	12V=/2.5W											
		DM	12V=/4.0W											

** Other options available, see page options.

OPTIONS

End plate kit required (Port size 1/4"): M-24002-01-01P (internal pilot) – M-24002-02-01P (external pilot)

Note : For pilot exhaust out main exhaust mod. 0353 is required

24A-XX -XX-Exx-Rxxx-xxx

- A Manifold base – Side cylinder ports
- B Manifold base – Bottom cylinder ports (no side cylinder ports)

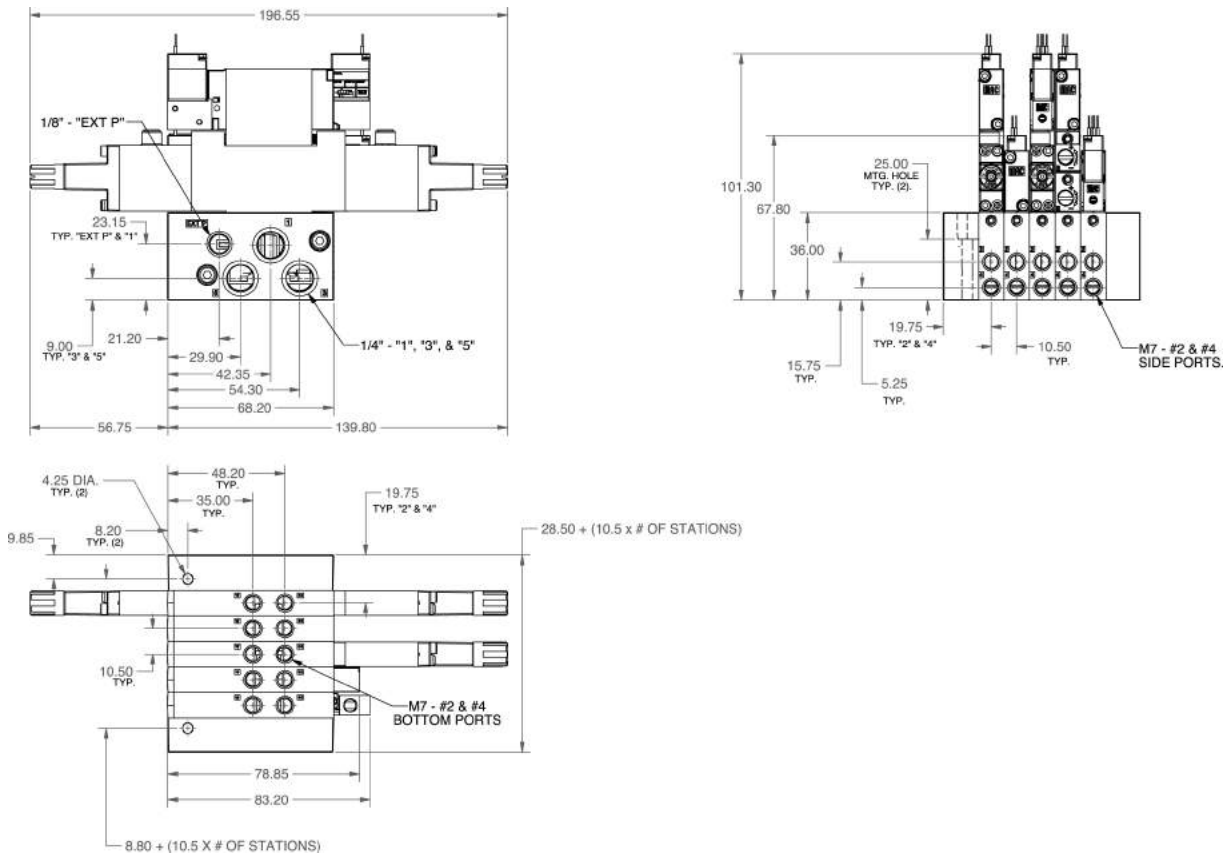
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	2 position internal pilot: Single solenoid: 2 to 8 bar Double solenoid: 1.3 to 8 bar 2/3 position external pilot: vacuum to 8 bar 3 position internal pilot: 2.7 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Flow :	0.4 Cv / 400 NL/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

Spare parts: • Blank station cover plate: M-24004 • Inlet isolator: 28568
• Exhaust isolator (Port #5): 28569 • Exhaust isolator (Port #3): 28570

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves 10 mm valve

Function	Port size	Flow [Max]	Manifold mounting
5/2, 5/3	M5, M7	400 NI/min	Manifold base plug-in

OPERATIONAL BENEFITS

1. 10 mm valve – solenoid pilot operated.
2. Balanced spool, immune to variations of pressure.
3. Bonded spool with minimum friction.
4. Wiping effect, eliminates sticking.
5. Pilot valve with balanced poppet, high flow, short and consistent response times



HOW TO ORDER

SINGLE PRESSURE MODELS (SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Closed center	5/3 Open center
Valve only	Internal	24A-AA-000-Exx-RxxP-xxx	24A-BA-000-Exx-RxxP-xxx	24A-EA-000-Exx-RxxP-xxx	24A-FA-000-Exx-RxxP-xxx
	External	24A-AB-000-Exx-RxxP-xxx	24A-BB-000-Exx-RxxP-xxx	24A-EB-000-Exx-RxxP-xxx	24A-FB-000-Exx-RxxP-xxx
M5	Internal	24A-AA-BAA-Exx-RxxP-xxx	24A-BA-BAA-Exx-RxxP-xxx	24A-EA-BAA-Exx-RxxP-xxx	24A-FA-BAA-Exx-RxxP-xxx
	External	24A-AB-BAA-Exx-RxxP-xxx	24A-BB-BAA-Exx-RxxP-xxx	24A-EB-BAA-Exx-RxxP-xxx	24A-FB-BAA-Exx-RxxP-xxx
M7	Internal	24A-AA-CAA-Exx-RxxP-xxx	24A-BA-CAA-Exx-RxxP-xxx	24A-EA-CAA-Exx-RxxP-xxx	24A-FA-CAA-Exx-RxxP-xxx
	External	24A-AB-CAA-Exx-RxxP-xxx	24A-BB-CAA-Exx-RxxP-xxx	24A-EB-CAA-Exx-RxxP-xxx	24A-FB-CAA-Exx-RxxP-xxx

DUAL PRESSURE MODELS (INTERNAL PILOT ONLY – SIDE PORTS)

Port size	Pilot air	5/2 Single solenoid	5/2 Double solenoid	5/3 Pressure center
Valve only	Internal from port #3	24A-CG-000-Exx-RxxP-xxx	24A-DG-000-Exx-RxxP-xxx	24A-GG-000-Exx-RxxP-xxx
	Internal from port #5	24A-CK-000-Exx-RxxP-xxx	24A-DH-000-Exx-RxxP-xxx	24A-GH-000-Exx-RxxP-xxx
M5	Internal from port #3	24A-CG-BAA-Exx-RxxP-xxx	24A-DG-BAA-Exx-RxxP-xxx	24A-GG-BAA-Exx-RxxP-xxx
	Internal from port #5	24A-CH-BAA-Exx-RxxP-xxx	24A-DH-BAA-Exx-RxxP-xxx	24A-GH-BAA-Exx-RxxP-xxx
M7	Internal from port #3	24A-CG-CAA-Exx-RxxP-xxx	24A-DG-CAA-Exx-RxxP-xxx	24A-GG-CAA-Exx-RxxP-xxx
	Internal from port #5	24A-CH-CAA-Exx-RxxP-xxx	24A-DH-CAA-Exx-RxxP-xxx	24A-GH-CAA-Exx-RxxP-xxx

SOLENOID OPERATOR >

E **XX-RXXX-XXX***

XX	Pilot type	XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
M2	Muffled exhaust	DB	24V= / 1.0W	P	Base plug-in	0	No manual operator	FA	Base plug-in
P2	Piped exhaust (M3)	DC	24V= / 1.8W			1	Recessed non locking	FB	Base plug-in w/ LED
		DD	24V= / 2.5W			3	Extended non locking	FC	Base plug-in w/ MOV
		DF	24V= / 4.0W					FD	Base plug-in w/ MOV and LED
		DH	12V= / 1.0W						
		DJ	12V= / 1.8W						
		DK	12V= / 2.5W						
		DM	12V= / 4.0W						

* Other options available, see page options.

OPTIONS

24A-XX-XX-Exx-Rxxx-xxx

End plate kit required (Port size 1/4"): M-24005-01-01P (internal pilot) – M-24005-02-01P (external pilot)

- A Manifold base – Side cylinder ports
- B Manifold base – Bottom cylinder ports (no side cylinder ports)

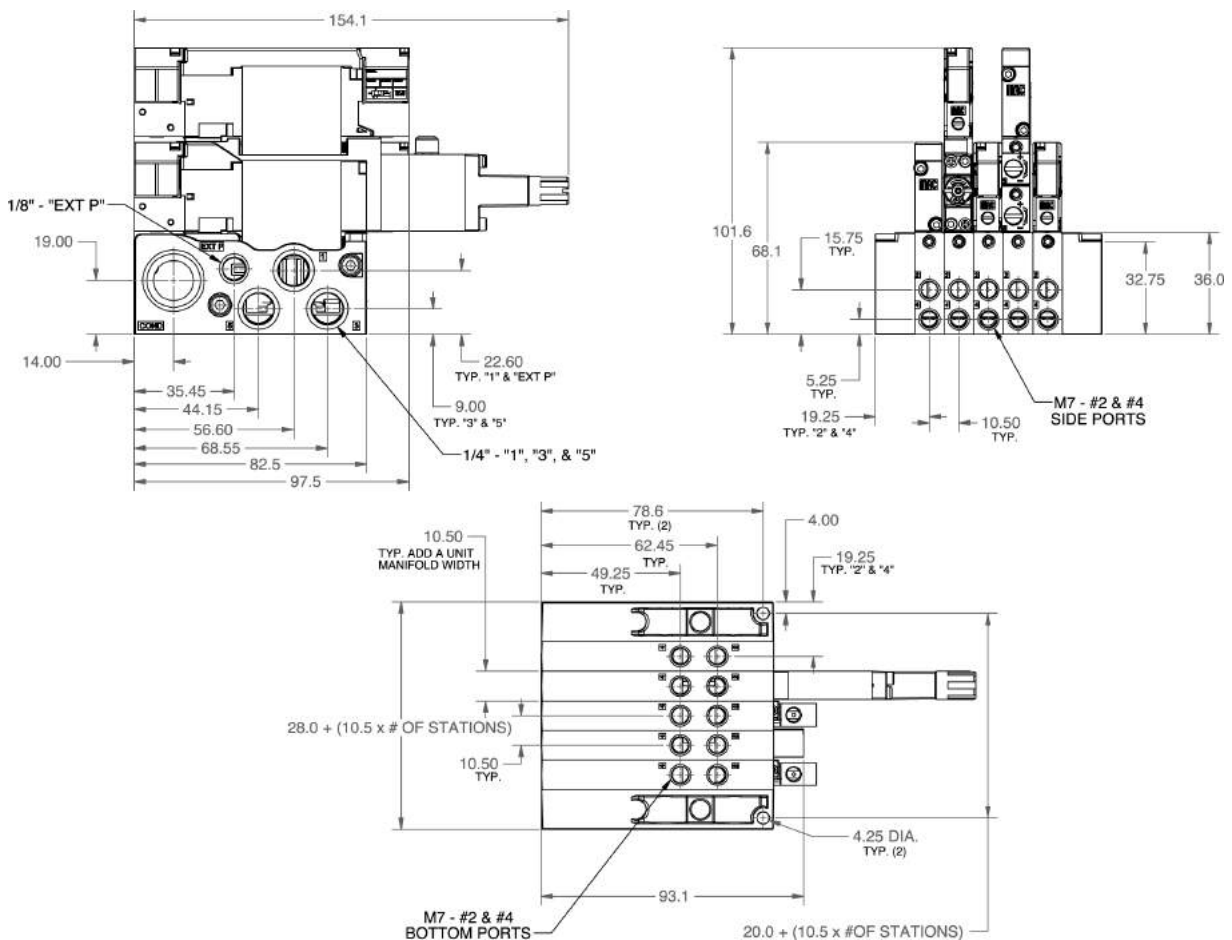
TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	2 position internal pilot: Single solenoid: 2 to 8 bar Double solenoid: 1.3 to 8 bar 2/3 position external pilot: vacuum to 8 bar 3 position internal pilot: 2.7 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Flow :	0.4 Cv / 400 NL/min
Coil :	Class A (#26 AWG x 18), continuous duty
Voltage range :	-15% to +10% of nominal voltage
Power :	4.0W, 3.0W, 2.5W, 1.8W, 1.0W

Spare parts: • Blank station cover plate: M-24004 • Inlet isolator: 28568
• Exhaust isolator (Port #5): 28569 • Exhaust isolator (Port #3): 28570

DIMENSIONS

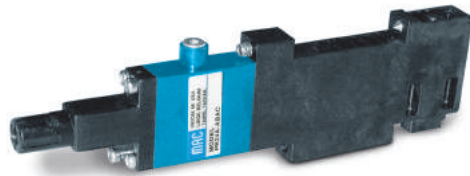
Dimensions shown are metric (mm)



Sandwich pressure regulators with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators
2. Compact all-included units.
3. Large orifice provides high flow
4. Various functions available
5. Simple, reliable and solid design



HOW TO ORDER

NON PLUG-IN SANDWICH REGULATORS

Gauge	Single pressure - Regulator "12" end	Dual pressure* - Regulator both ends
No gauge port	PR42B-BAAA	PR42B-BCAA
With gauge Port	PR42B-BBAA	PR42B-BDAA

PLUG-IN SANDWICH REGULATORS (WITH GAGE PORT)

Single pressure Regulator "12" end Internal pilot	Single pressure Regulator "12" end External pilot
PR24A-AAAA	PR24A-ABAA

* For use with dual pressure valves.

OPTIONS

Pressure range :

PR24A-xxxX

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2,7 bar

Notes:

- External pilot regulator required only when supply pressure (primary) to the valve is below the minimum operating pressure of the 24 series valve.
- When an internal pilot regulator is used with the 24 series valve, the valve should be ordered as external pilot. This ensures that the pilot supply is not regulated. If an internal pilot valve is used with an internal pilot regulator, the pilot supply is regulated.

TECHNICAL DATA

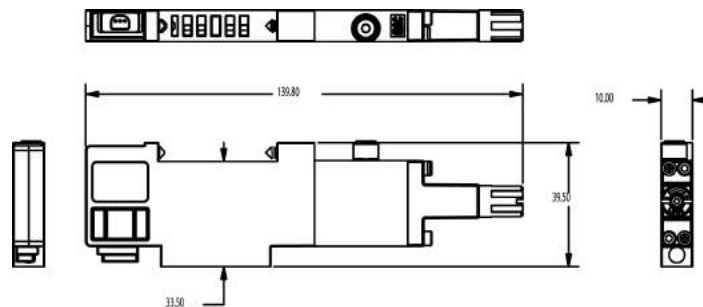
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Coil :	Class A (#26 AWG x 18), continuous duty
Temperature range :	0°F to 120°F / -18°C to +50°C

- Spare parts :
- Gage Kit No coupling: N-42004-01
With short coupling: N-42004-02 (required with double solenoid valve)
With long coupling: N-42004-03 (required with double solenoid valve)
 - Sandwich flow control Plug-in with flow control on same end: FC24A-AB
Non plug-in with flow control on same end: FC24A-BB
Non plug-in with flow control on each end: FC24A-CA

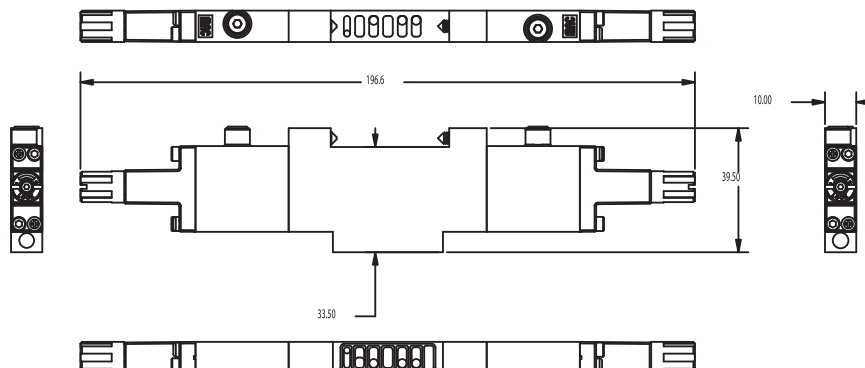
DIMENSIONS

Dimensions shown are metric (mm)

Single regulator



Double regulator



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **EXX-R XX X - X XX**
1 2 3 4 5

1. PILOT OPTION		4. MANUAL OPERATOR	
E XX - RXX X- X XX VOLTAGE		E XX - RXX X- X XX MANUAL OPERATOR	
M2	12mm – muffled exhaust	0	No operator
P2	12mm – piped exhaust (M3)	1	Non-locking recessed
M7	17mm – muffled exhaust	3	Non-locking extended
P7	17mm – piped exhaust (M3)		
2. VOLTAGE		5. ELECTRICAL CONNECTION	
E XX - RXX X- X XX VOLTAGE		ELECTRICAL CONNECTIONS FOR NON PLUG-IN VALVES	
E XX - RXX X- X XX		E XX - RXX X- X XX	
DB	24 VDC (1.0W)	BA	Flying leads
DC	24 VDC (1.8W)	BB	Flying leads with LED
DD	24 VDC (2.5W)	BC	Flying leads with MOV
DE	24 VDC (3.0W)	BD	Flying leads with LED and MOV
DF	24 VDC (4.0W)	RA	Mini JAC solenoid plug-in
DH	12 VDC (1.0W)	RB	Mini JAC solenoid plug-in with LED
DJ	12 VDC (1.8W)	RC	Mini JAC solenoid plug-in with MOV
DK	12 VDC (2.5W)	RD	Mini JAC solenoid plug-in with LED and MOV
DL	12 VDC (3.0W)	TA	JST solenoid plug-in
DM	12 VDC (4.0W)	TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
3. WIRE LENGHT		ELECTRICAL CONNECTIONS FOR PLUG-IN VALVES	
E XX - RXX X- X XX WIRE LENGHT		E XX - RXX X- X XX	
O*	No lead wire	FA	Base plug-in
A	45 cm - 18"	FB	Base plug-in with LED
B	60 cm - 24"	FC	Base plug-in with MOV
C	90 cm - 36"	FD	Base plug-in with LED and MOV
D	120 cm - 48"		
E	180 cm - 72"		
F	240 cm - 96"		
G	300 cm - 120"		
H	365 cm - 144"		
P	Base plug-in (24 Series plug-in)		

* Not available for flying leads connector

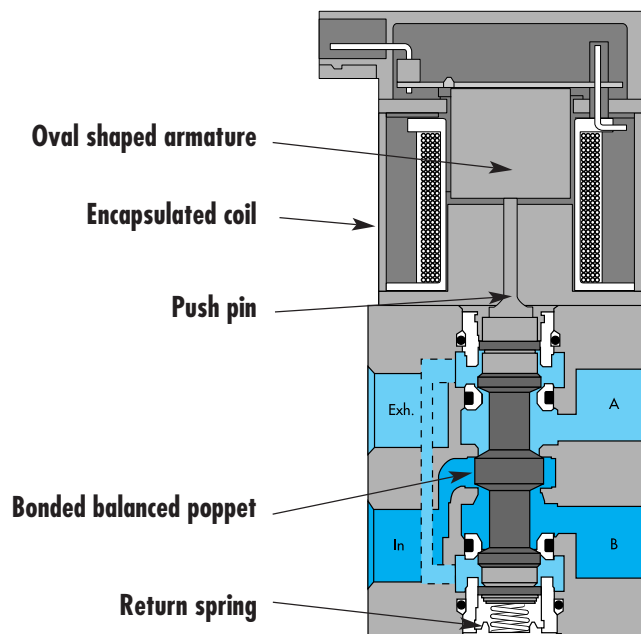
Direct solenoid and solenoid pilot operated valves

Individual mounting

Inline	
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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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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 1.3 watts.
- Rectified AC voltage.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual mounting
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	Single Operator		Double Operator	
	Without flow controls	With flow controls	Without flow controls	With flow controls
G1/8"	46A-AC1-J xxx-xxx	46A-AC2-J xxx-xxx	46A-GC1-J xxx-xxx	46A-GC2-J xxx-xxx
M5	46A-AD1-J xxx-xxx	46A-AD2-J xxx-xxx	46A-GD1-J xxx-xxx	46A-GD2-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
Single & double solenoid			
AA 120 V~/5,4W	A 45 cm	1 Non-locking	BA Flying leads
AC 24 V~/5,4W	B 60 cm	2 Locking	GA MAC JAC Solenoid plug-in
DA 24 V~/5,4W	C 90 cm		GG MAC JAC Solenoid plug-in with rectifier
DB 12 V~/5,4W	**O No lead wire		JB Rectangular connector
Single solenoid only			JD Rectangular connector with light
DC 24 V~/2,4W			KA Mini square connector
DD 12 V~/2,4W			KD Mini square connector with light

* Other options available, see page options.

Note : - AC voltage requires connector with rectifier.

- With the MAC JAC, washdown capability is possible. Consult factory for washdown modification number.
- Double solenoid requires minimum 5,4 watts.

OPTIONS

46A-AC1-Jxxx-xxx

G Use with O ring mount (body option D and "H")

- A** Single operator - 4 port body with side ports
- C** Single operator - 4 port body with bottom ports (No side ports)
- D** Single operator - Bottom O ring mount - All ports (No side ports)
- F** Single operator - Bottom O ring mount - Cylinder ports only - Side inlet and exhaust
- G** Double operator - 4 Port body - with side ports
- H** Double operator - Bottom O ring mount. All ports (no side ports).

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

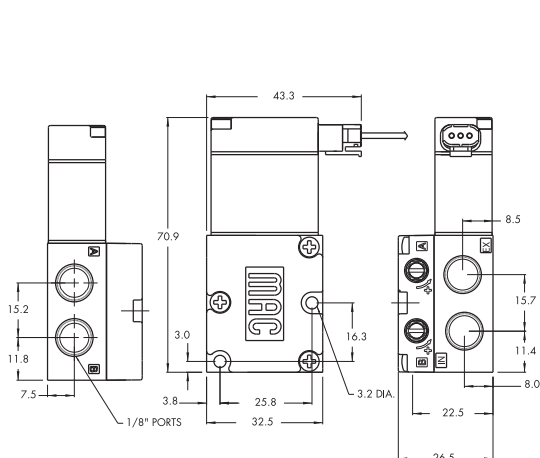
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	3,3 mm
Flow :	1,8W : 200 NI/min (Cv 0,20) – 2,4W : 200 NI/min (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

Options : • NPTF threads

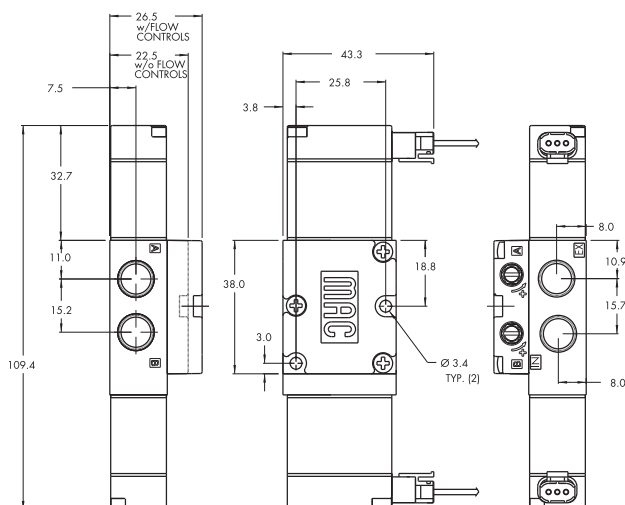
DIMENSIONS

Dimensions shown are metric (mm)

Single solenoid



Double solenoid



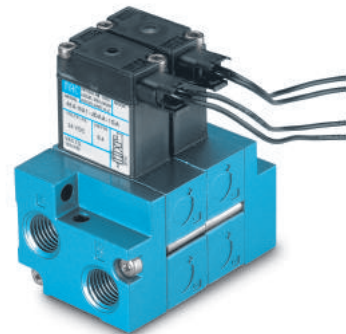


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold Mounting
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.



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

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	JA Square connector
DB 12 V~/5,4W	C 90 cm		JC Square connector with light
DC 24 V~/2,4W			JB Rectangular connector
DD 12 V~/2,4W			JD Rectangular connector with light
			KA Mini square connector
			KD Mini square connector with light

* Other options available, see page options.

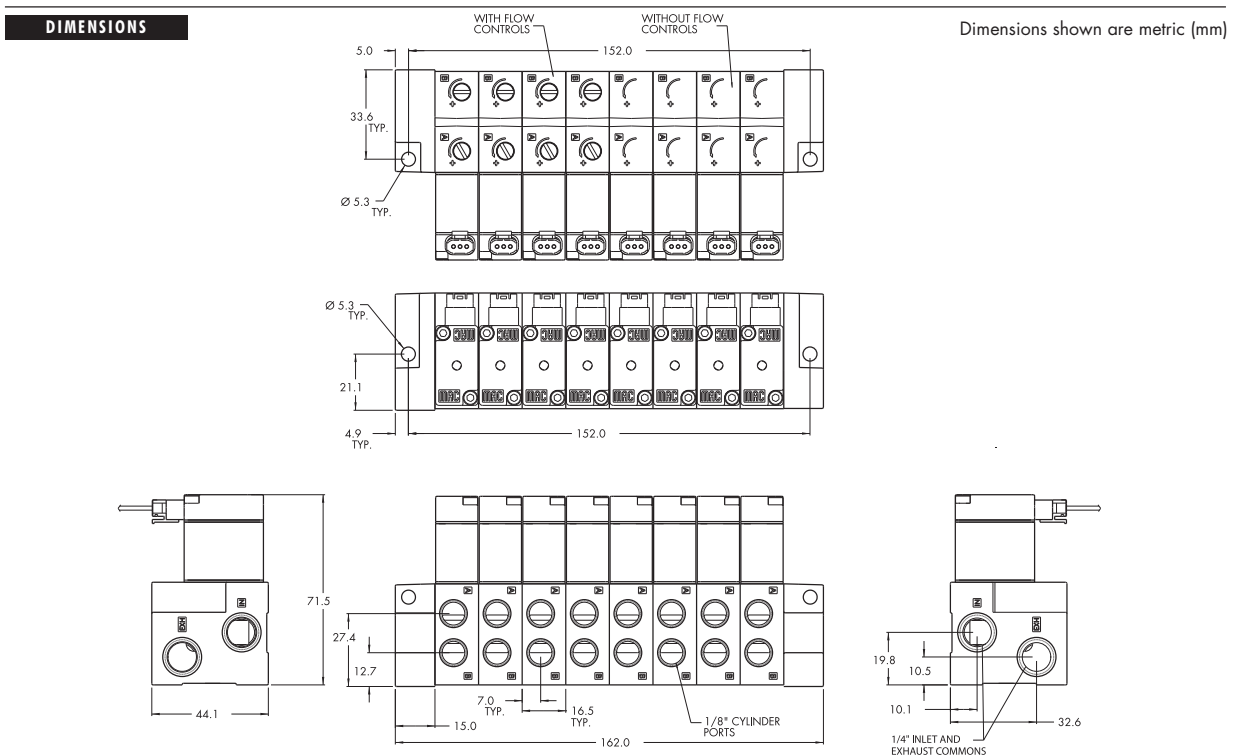
Note : - AC voltage requires connector with rectifier.

- 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.

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



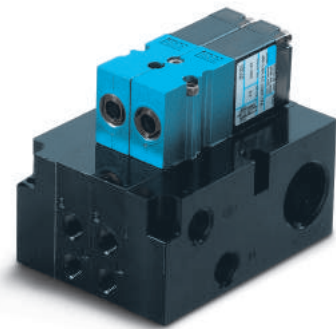


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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.



HOW TO ORDER

Port size	Single solenoid	Double solenoid
Valve less base	46A-L00-00-J XX P- XXX	46A-N00-00-J XX P- XXX
G1/8"	46A-LSB-AC-J XX P- XXX	46A-NSB-BL-J XX P- XXX

SOLENOID OPERATOR ➤

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

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

* Other options available, see page **options**.
 Notes : - AC voltage requires connector with rectifier.
 - Double solenoid requires minimum 5,4 watts.

OPTIONS

46A-LSB-AC-JXXP-XXX

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

Example : base only : 46A-0SB-AC.
 End plate kit 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

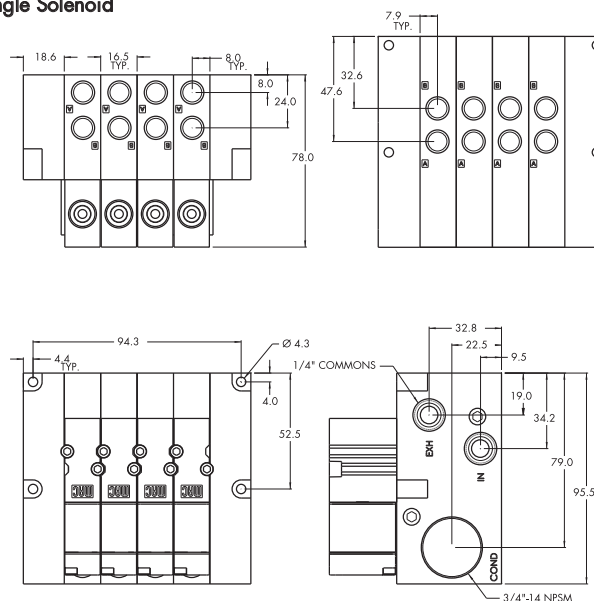
Options : • NPTF threads

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

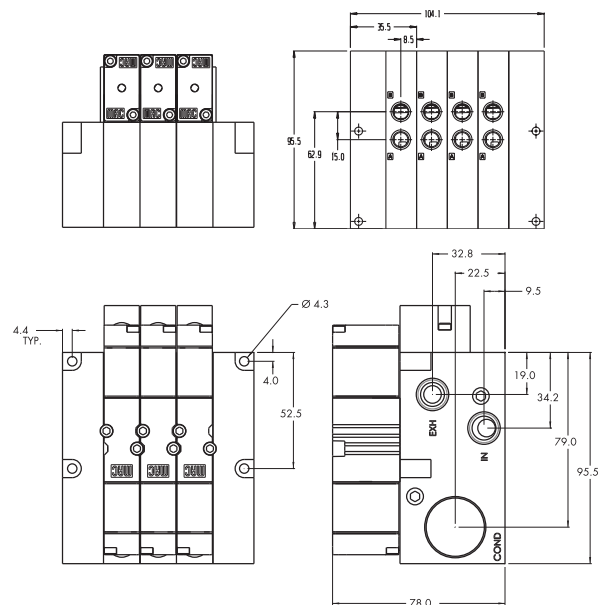
DIMENSIONS

Dimensions shown are metric (mm)

Single Solenoid



Double solenoid



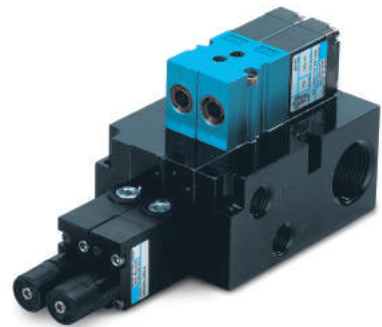


Direct solenoid and solenoid pilot operated valves

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

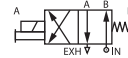
OPERATIONAL BENEFITS

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.



HOW TO ORDER

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



SOLENOID OPERATOR >

J **xx** P-**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		

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

OPTIONS

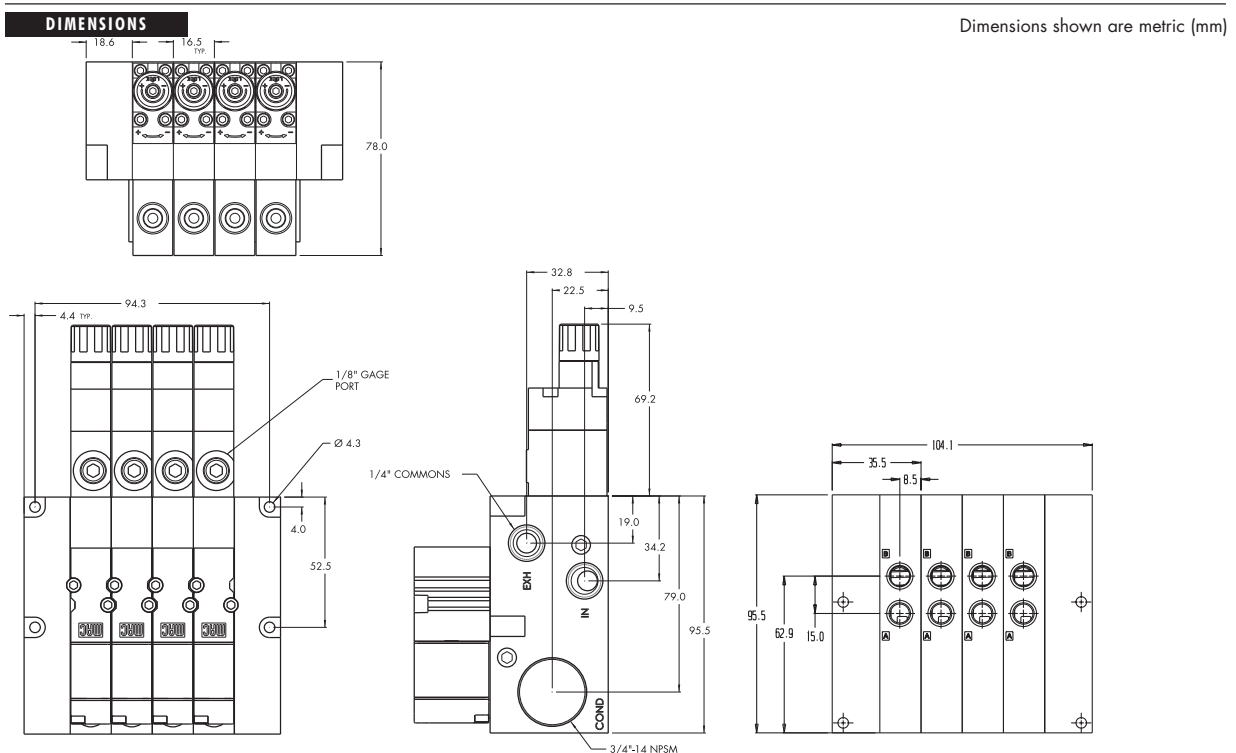
46A-LSB-AJ-J**xxP-xxx**

- 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

Example : base only with regulator : 46A-0SB-AJ.
End plate kit 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 :
- Spare parts :
- NPTF threads
 - Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002 • Tie rod (x2) : 79443
 - Replacement regulators : PR46A-0AAA (slotted stem)
PR46A-0BAA (adjusting knob)
PR46A-0CAA (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





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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.



HOW TO ORDER

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



SOLENOID OPERATOR >

J **xx** P-**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		

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

OPTIONS

46A-LSB-AJ-JxxP-xxx

D Side cylinder ports
M Bottom cylinder ports

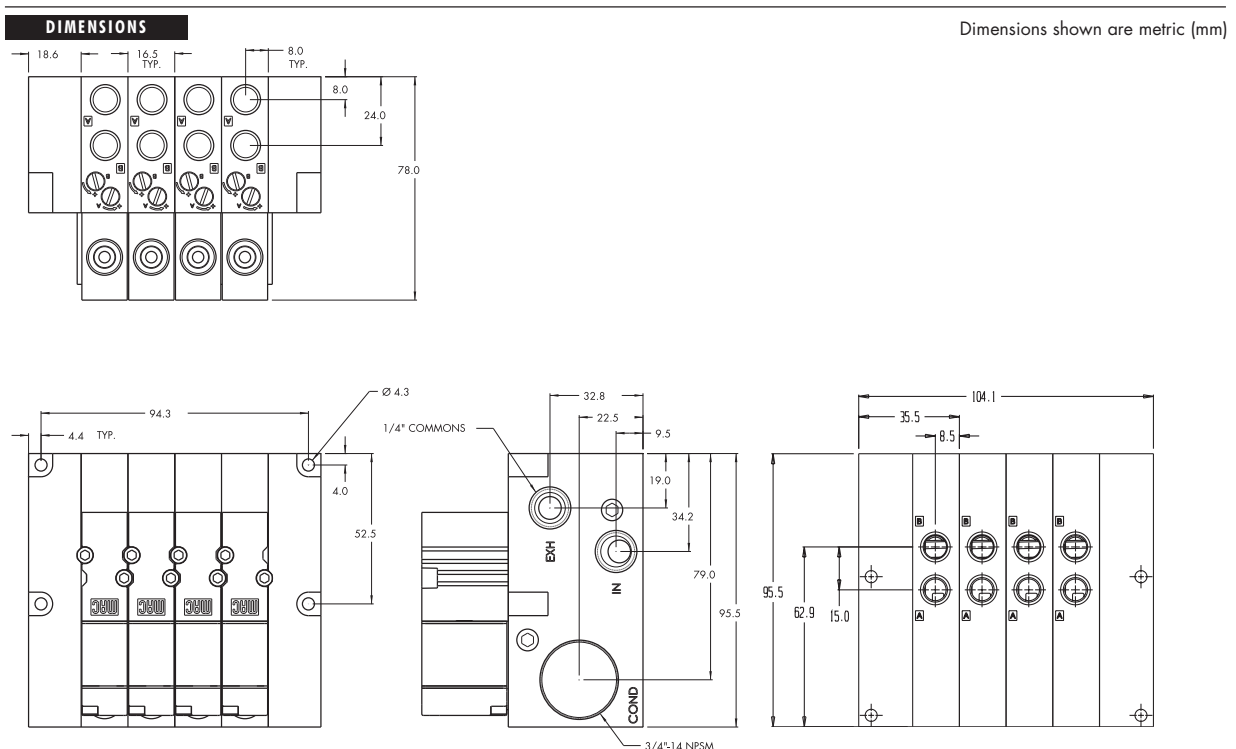
O Base only – no valve
L Base mount body
M Base mount body with gage port

Example : base only with regulator: 46A-0SB-AD.
End plate kit 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





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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.



HOW TO ORDER

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



SOLENOID OPERATOR ➤

J **xx** P-**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		

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

OPTIONS

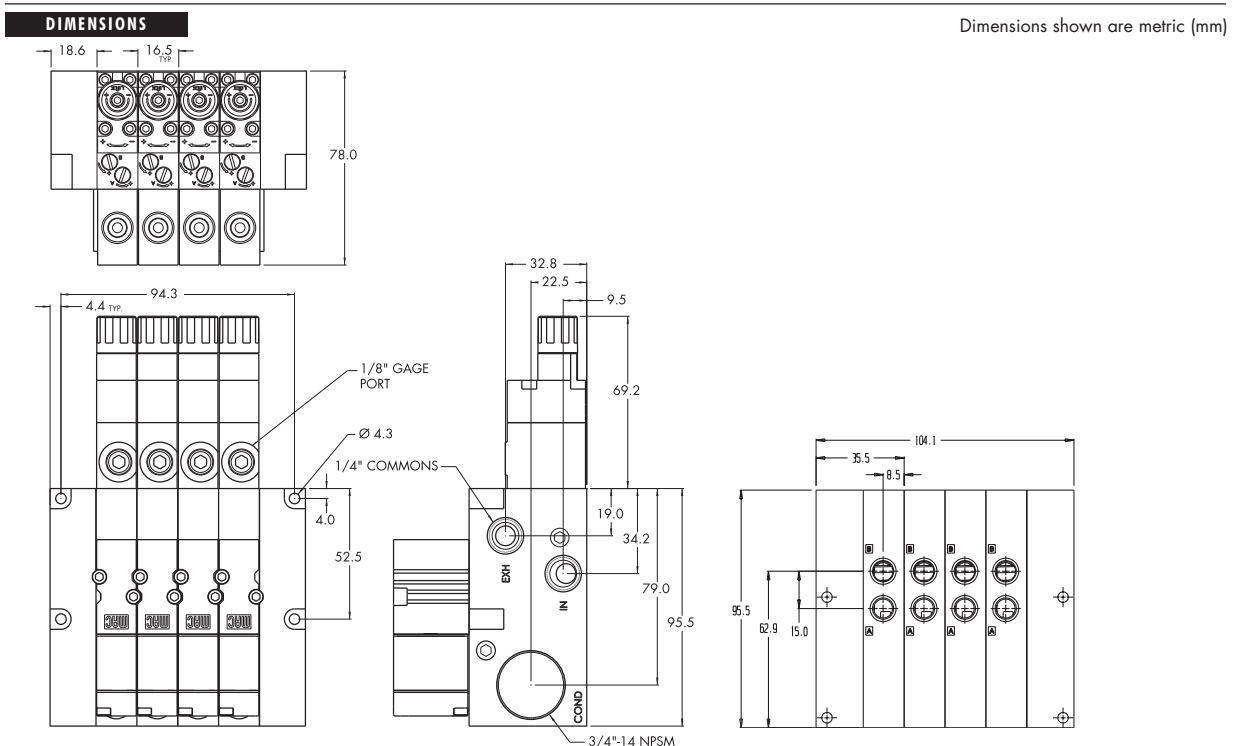
46A-LSB-AJ-JxxP-xxx

- 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

Example : base only with regulator : 46A-0SB-AK.
End plate kit 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

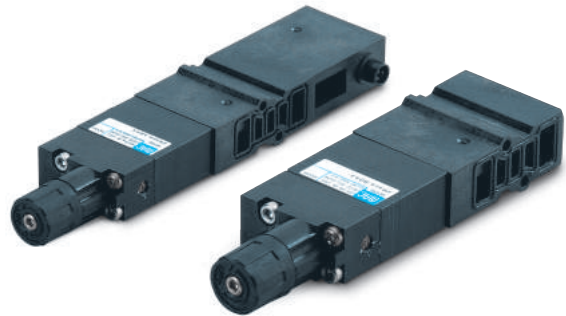
- Options : • NPTF threads
- Spare parts : • Inlet isolator : 28501 • Exhaust isolator : 28502 • Valve cover plate : M-46002 • Tie rod (x2) : 79443
- Replacement regulators : PR46A-0AAA (slotted stem)
PR46A-0BAA (adjusting knob)
PR46A-0CAA (slotted stem with locknut)
- Regulating range options : • PR46A-xxx**A**
- A** 0 to 8 bar
 - B** 0 to 5,3 bar
 - C** 0 to 2 bar



Sandwich-pressure regulator

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.
6. Single pressure regulator.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" AND "NON PLUG-IN" VALVES

Gauge	For plug-in valves	For non plug-in valves
Gauge port (plugged)	PR46A-AAAA	PR46A-BAAA

OPTIONS

Pressure range :

PR46A-AAA A

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2,7 bar

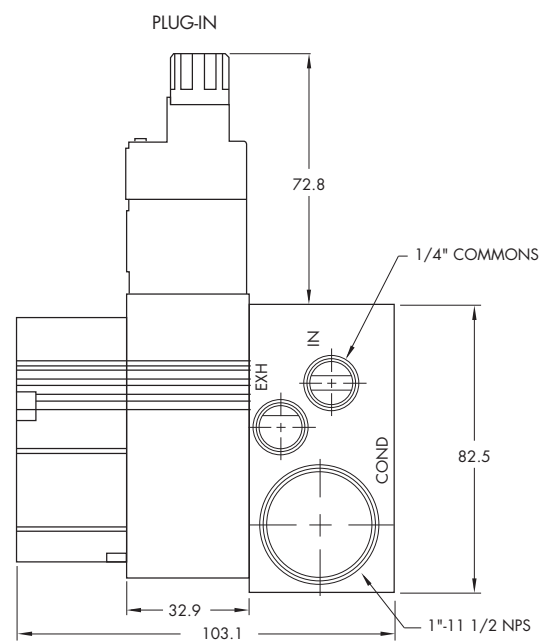
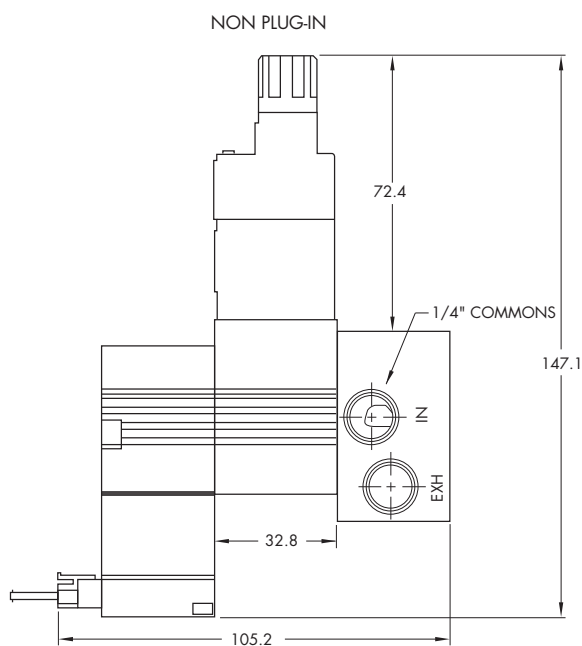
- A** Manual adjust with slotted screwdriver stem
- B** Manual adjust with adjusting knob
- C** Manual adjust with slotted screwdriver stem and locknut

- 0** Regulator only (no sandwich block)

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	210 NL/min (Cv 0,21)

DIMENSIONS

Dimensions shown are metric (mm)



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

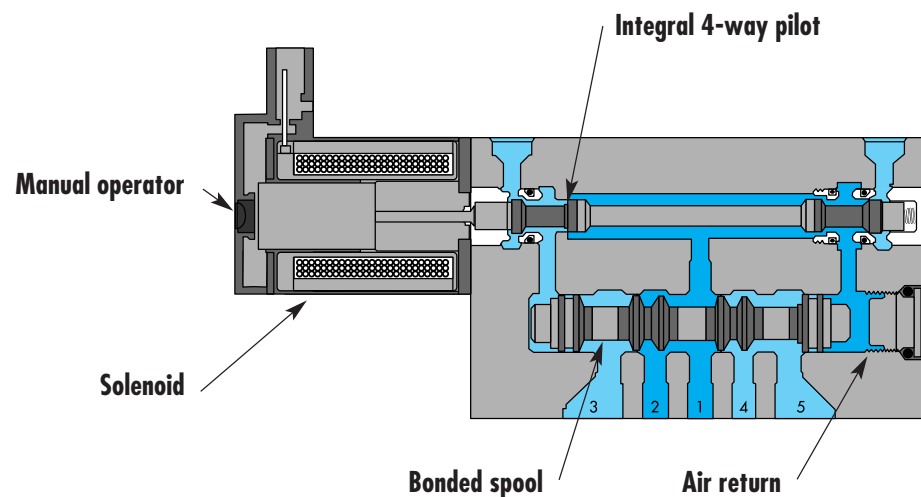
Direct solenoid and solenoid pilot operated valves

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"
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Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"
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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.

Function	Port size	Flow [Max]	Individual mounting
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.

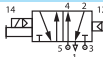
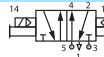



HOW TO ORDER

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	42B-AMA-000-Gxxx-xxx	42B-BMA-000-Gxxx-xxx	42B-EMA-000-Gxxx-xxx	42B-FMA-000-Gxxx-xxx
	External	42B-AMD-000-Gxxx-xxx	42B-BMD-000-Gxxx-xxx	42B-EMD-000-Gxxx-xxx	42B-FMD-000-Gxxx-xxx
M5	Internal	42B-AMA-GAL-Gxxx-xxx	42B-BMA-GAL-Gxxx-xxx	42B-EMA-GAL-Gxxx-xxx	42B-FMA-GAL-Gxxx-xxx
	External	42B-AMD-GAM-Gxxx-xxx	42B-BMD-GAM-Gxxx-xxx	42B-EMD-GAM-Gxxx-xxx	42B-FMD-GAM-Gxxx-xxx
M7	Internal	42B-AMA-LAL-Gxxx-xxx	42B-BMA-LAL-Gxxx-xxx	42B-EMA-LAL-Gxxx-xxx	42B-FMA-LAL-Gxxx-xxx
	External	42B-AMD-LAM-Gxxx-xxx	42B-BMD-LAM-Gxxx-xxx	42B-EMD-LAM-Gxxx-xxx	42B-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	42B-CMB-000-Gxxx-xxx	42B-DMB-000-Gxxx-xxx	42B-HMB-000-Gxxx-xxx
		Supply #5 port	42B-CMC-000-Gxxx-xxx	42B-DMC-000-Gxxx-xxx	42B-HMC-000-Gxxx-xxx
	External		42B-CMD-000-Gxxx-xxx	42B-DMD-000-Gxxx-xxx	42B-HMD-000-Gxxx-xxx
M5	Internal	Supply #3 port	42B-CMB-GAL-Gxxx-xxx	42B-DMB-GAL-Gxxx-xxx	42B-HMB-GAL-Gxxx-xxx
		Supply #5 port	42B-CMC-GAL-Gxxx-xxx	42B-DMC-GAL-Gxxx-xxx	42B-HMC-GAL-Gxxx-xxx
	External		42B-CMD-GAM-Gxxx-xxx	42B-DMD-GAM-Gxxx-xxx	42B-HMD-GAM-Gxxx-xxx
M7	Internal	Supply #3 port	42B-CMB-LAL-Gxxx-xxx	42B-DMB-LAL-Gxxx-xxx	42B-HMB-LAL-Gxxx-xxx
		Supply #5 port	42B-CMC-LAL-Gxxx-xxx	42B-DMC-LAL-Gxxx-xxx	42B-HMC-LAL-Gxxx-xxx
	External		42B-CMD-LAM-Gxxx-xxx	42B-DMD-LAM-Gxxx-xxx	42B-HMD-LAM-Gxxx-xxx

STANDARD SOLENOID OPERATOR ►

G **xxx-xxx***

XX	Voltage	X	Wire length	X	Manual operator		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			GA	MAC JAC Solenoid plug-in
DF	24 V~/4,0W					KA	Mini connector
						KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

Note : AC voltage requires connector with rectifier.

* Other options available, see page options.

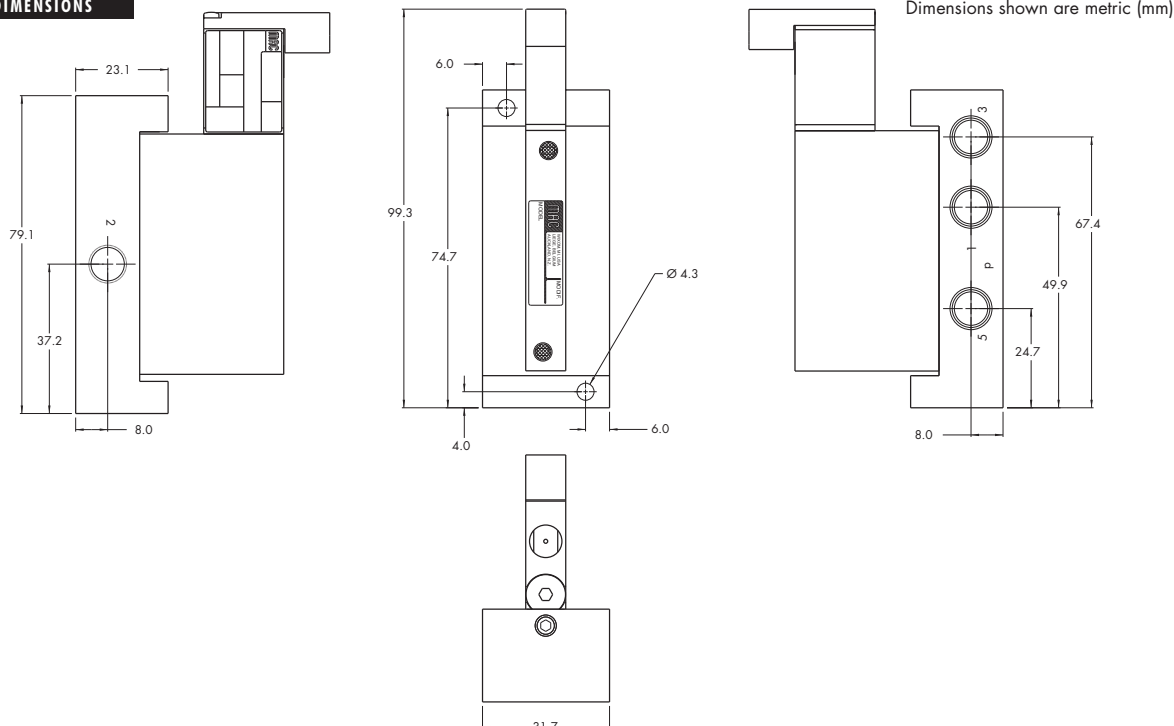
TECHNICAL DATA

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 Nl/min (Cv 0,4) – M5: 350 Nl/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 : FC42B-BB
- Sandwich regulator : see 'Regulator' section

DIMENSIONS



Function Port size Flow [Max] Individual mounting

5/2, 5/3

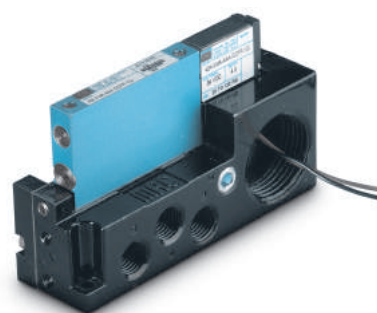
M5, M7

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	42B-AMA-000-GxxP-xxx	42B-BME-000-GxxP-xST	42B-EME-000-GxxP-xST	42B-FME-000-GxxP-xST
	External	42B-AMD-000-GxxP-xxx	42B-BMH-000-GxxP-xST	42B-EMH-000-GxxP-xST	42B-FMH-000-GxxP-xST
M5	Internal	42B-AMA-GAA-GxxP-xxx	42B-BME-GAC-GxxP-xST	42B-EME-GAC-GxxP-xST	42B-FME-GAC-GxxP-xST
	External	42B-AMD-GAB-GxxP-xxx	42B-BMH-GAD-GxxP-xST	42B-EMH-GAD-GxxP-xST	42B-FMH-GAD-GxxP-xST
M7	Internal	42B-AMA-LAA-GxxP-xxx	42B-BME-LAC-GxxP-xST	42B-EME-LAC-GxxP-xST	42B-FME-LAC-GxxP-xST
	External	42B-AMD-LAB-GxxP-xxx	42B-BMH-LAD-GxxP-xST	42B-EMH-LAD-GxxP-xST	42B-FMH-LAD-GxxP-xST

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	42B-CMB-000-GxxP-xxx	42B-DMF-000-GxxP-xST
	Supply #5 port	42B-CMC-000-GxxP-xxx	42B-DMG-000-GxxP-xST	42B-HMF-000-GxxP-xST
M5	External	42B-CMD-000-GxxP-xxx	42B-DMH-000-GxxP-xST	42B-HMG-000-GxxP-xST
	Internal	Supply #3 port	42B-CMB-GAA-GxxP-xxx	42B-DMF-GAC-GxxP-xST
M7	Supply #5 port	42B-CMC-GAA-GxxP-xxx	42B-DMG-GAC-GxxP-xST	42B-HMF-GAC-GxxP-xST
	External	42B-CMD-GAB-GxxP-xxx	42B-DMH-GAD-GxxP-xST	42B-HMG-GAD-GxxP-xST
M5	Internal	Supply #3 port	42B-CMB-LAA-GxxP-xxx	42B-DMF-LAC-GxxP-xST
	Supply #5 port	42B-CMC-LAA-GxxP-xxx	42B-DMG-LAC-GxxP-xST	42B-HMF-LAC-GxxP-xST
M7	External	42B-CMD-LAB-GxxP-xxx	42B-DMH-LAD-GxxP-xST	42B-HMG-LAD-GxxP-xST

STANDARD SOLENOID OPERATOR ►

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

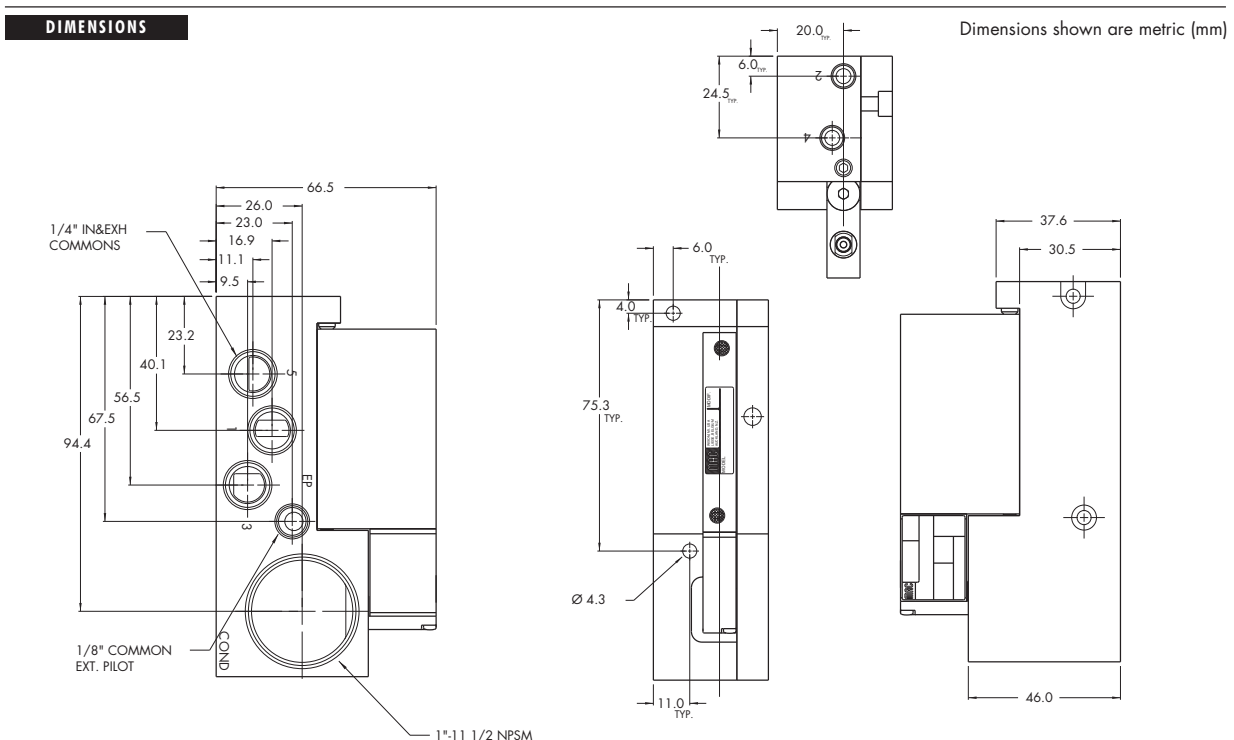
XX Voltage	X Manual operator	XX Electrical connection
AA 120 V~/2,5W	1 Non-locking	ST Base plug-in
DC 24 V=/1,8W	2 Locking	SA Base plug-in
DD 24 V=/2,5W		SJ Base plug-in with light
DF 24 V=/4,0W		SS Base plug-in with rectifier & light & ground

Note : AC voltage requires connector with rectifier (for double solenoid consult factory).

* Other options available, see page options.

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 Nl/min (Cv 0,4) – M5: 350 Nl/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

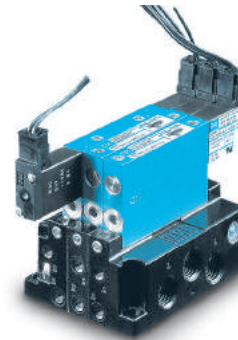
- Options :
- NPTF ports
 - Sandwich flow controls : FC42B-AB
 - Sandwich regulator : see 'Regulator' section



Function	Port size	Flow [Max]	Manifold mounting
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	42B-AMA-000-Gxxx-xxx	42B-BMA-000-Gxxx-xxx	42B-EMA-000-Gxxx-xxx	42B-FMA-000-Gxxx-xxx
	External	42B-AMD-000-Gxxx-xxx	42B-BMD-000-Gxxx-xxx	42B-EMD-000-Gxxx-xxx	42B-FMD-000-Gxxx-xxx
M5	Internal	42B-AMA-GJL-Gxxx-xxx	42B-BMA-GJL-Gxxx-xxx	42B-EMA-GJL-Gxxx-xxx	42B-FMA-GJL-Gxxx-xxx
	External	42B-AMD-GJM-Gxxx-xxx	42B-BMD-GJM-Gxxx-xxx	42B-EMD-GJM-Gxxx-xxx	42B-FMD-GJM-Gxxx-xxx
M7	Internal	42B-AMA-LJL-Gxxx-xxx	42B-BMA-LJL-Gxxx-xxx	42B-EMA-LJL-Gxxx-xxx	42B-FMA-LJL-Gxxx-xxx
	External	42B-AMD-LJM-Gxxx-xxx	42B-BMD-LJM-Gxxx-xxx	42B-EMD-LJM-Gxxx-xxx	42B-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	42B-CMB-000-Gxxx-xxx	42B-DMB-000-Gxxx-xxx
		Supply #5 port	42B-CMC-000-Gxxx-xxx	42B-DMC-000-Gxxx-xxx
	External	Supply #3 port	42B-CMD-000-Gxxx-xxx	42B-DMD-000-Gxxx-xxx
		Supply #5 port	42B-CMC-GJL-Gxxx-xxx	42B-DMC-GJL-Gxxx-xxx
M5	Internal	Supply #3 port	42B-CMB-GJL-Gxxx-xxx	42B-DMB-GJL-Gxxx-xxx
		Supply #5 port	42B-CMC-GJL-Gxxx-xxx	42B-DMC-GJL-Gxxx-xxx
	External	Supply #3 port	42B-CMD-GJM-Gxxx-xxx	42B-DMD-GJM-Gxxx-xxx
		Supply #5 port	42B-CMC-LJL-Gxxx-xxx	42B-DMC-LJL-Gxxx-xxx
M7	Internal	Supply #3 port	42B-CMB-LJL-Gxxx-xxx	42B-DMB-LJL-Gxxx-xxx
		Supply #5 port	42B-CMC-LJL-Gxxx-xxx	42B-DMC-LJL-Gxxx-xxx
	External	Supply #3 port	42B-CMD-LJM-Gxxx-xxx	42B-DMD-LJM-Gxxx-xxx
		Supply #5 port	42B-CMD-LJM-Gxxx-xxx	42B-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		GA MAC JAC Solenoid plug-in
DF 24 V=/4,0W			KA Mini connector
			KT Mini connector with light
			KD Mini connector with rectifier & light & ground

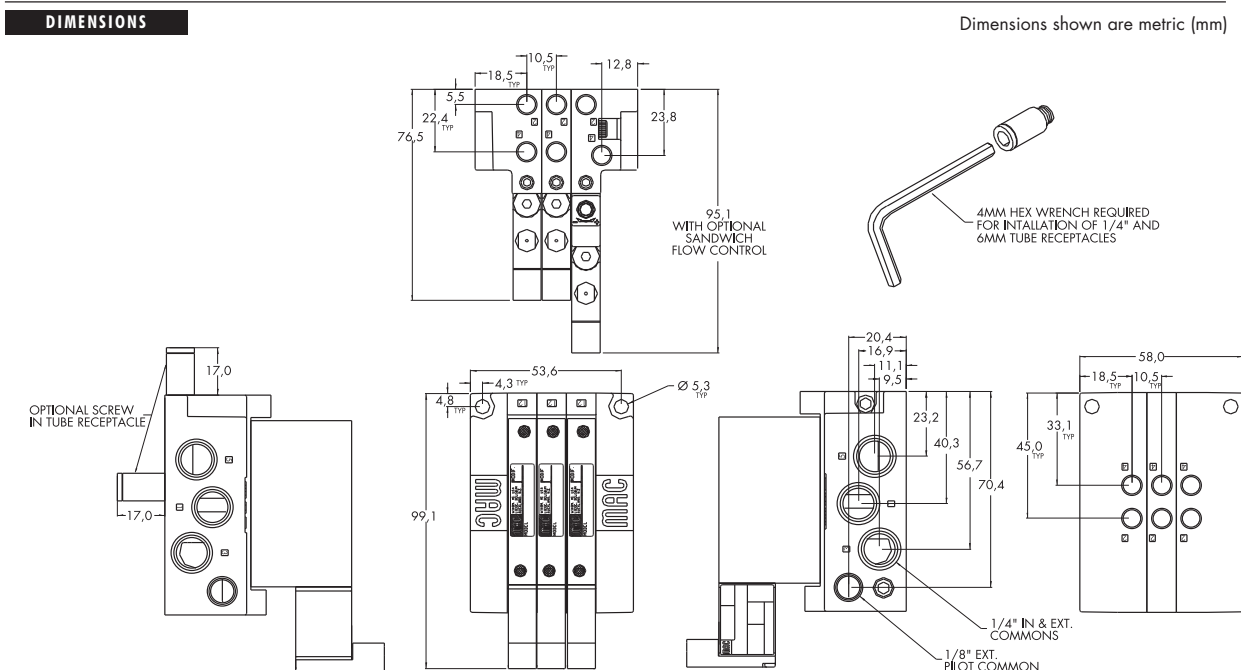
Note : - AC voltage requires connector with rectifier.

* Other options available, see page options.

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 - 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 Nl/min (Cv 0,4) – M5: 350 Nl/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

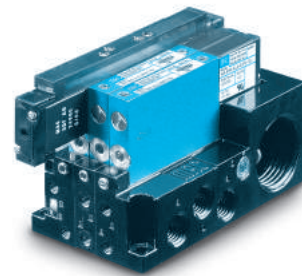
- Options :
- NPTF threads • Sandwich flow controls : FC42B-BB
 - Sandwich regulator : see "regulators" section • Isolator disk for inlet and exhaust: 28454
 - Valve blanking plate : M-42004



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

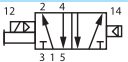
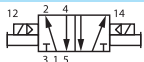
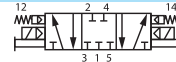
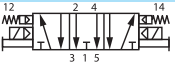
OPERATIONAL BENEFITS

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.

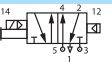
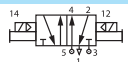



HOW TO ORDER

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	42B-AMA-000-GxxP-xxx	42B-BME-000-GxxP-xST	42B-EME-000-GxxP-xST	42B-FME-000-GxxP-xST
	External	42B-AMD-000-GxxP-xxx	42B-BMH-000-GxxP-xST	42B-EMH-000-GxxP-xST	42B-FMH-000-GxxP-xST
M5	Internal	42B-AMA-GJA-GxxP-xxx	42B-BME-GJC-GxxP-xST	42B-EME-GJC-GxxP-xST	42B-FME-GJC-GxxP-xST
	External	42B-AMD-GJB-GxxP-xxx	42B-BMH-GJD-GxxP-xST	42B-EMH-GJD-GxxP-xST	42B-FMH-GJD-GxxP-xST
M7	Internal	42B-AMA-LJA-GxxP-xxx	42B-BME-LJC-GxxP-xST	42B-EME-LJC-GxxP-xST	42B-FME-LJC-GxxP-xST
	External	42B-AMD-LJB-GxxP-xxx	42B-BMH-LJD-GxxP-xST	42B-EMH-LJD-GxxP-xST	42B-FMH-LJD-GxxP-xST

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	42B-CMB-000-GxxP-xxx	42B-DMF-000-GxxP-xST
		Supply #5 port	42B-CMC-000-GxxP-xxx	42B-DMG-000-GxxP-xST
	External	Supply #3 port	42B-CMD-000-GxxP-xxx	42B-DMH-000-GxxP-xST
		Supply #5 port	42B-CMC-GJA-GxxP-xxx	42B-DMG-GJC-GxxP-xST
M5	Internal	Supply #3 port	42B-CMB-GJA-GxxP-xxx	42B-DMF-GJC-GxxP-xST
		Supply #5 port	42B-CMC-GJA-GxxP-xxx	42B-DMG-GJC-GxxP-xST
	External	Supply #3 port	42B-CMD-GJB-GxxP-xxx	42B-DMH-GJD-GxxP-xST
		Supply #5 port	42B-CMC-LJA-GxxP-xxx	42B-DMG-LJC-GxxP-xST
M7	Internal	Supply #3 port	42B-CMB-LJA-GxxP-xxx	42B-DMF-LJC-GxxP-xST
		Supply #5 port	42B-CMC-LJA-GxxP-xxx	42B-DMG-LJC-GxxP-xST
	External	Supply #3 port	42B-CMD-LJB-GxxP-xxx	42B-DMH-LJD-GxxP-xST
		Supply #5 port	42B-CMD-LJB-GxxP-xxx	42B-DMH-LJD-GxxP-xST

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	ST Base plug-in
DD 24 V~/2,5W		Single solenoid models
DF 24 V~/4,0W		SA Base plug-in
		SJ Base plug-in with light
		SS Base plug-in with rectifier & light & ground

* Other options available, see page options.

Note : - AC voltage requires connector with rectifier (for double solenoid consult factory).
- Manifold assemblies consist of (1) left end manifold, (1) right end manifold, and middle station manifolds (options "J" or "K").

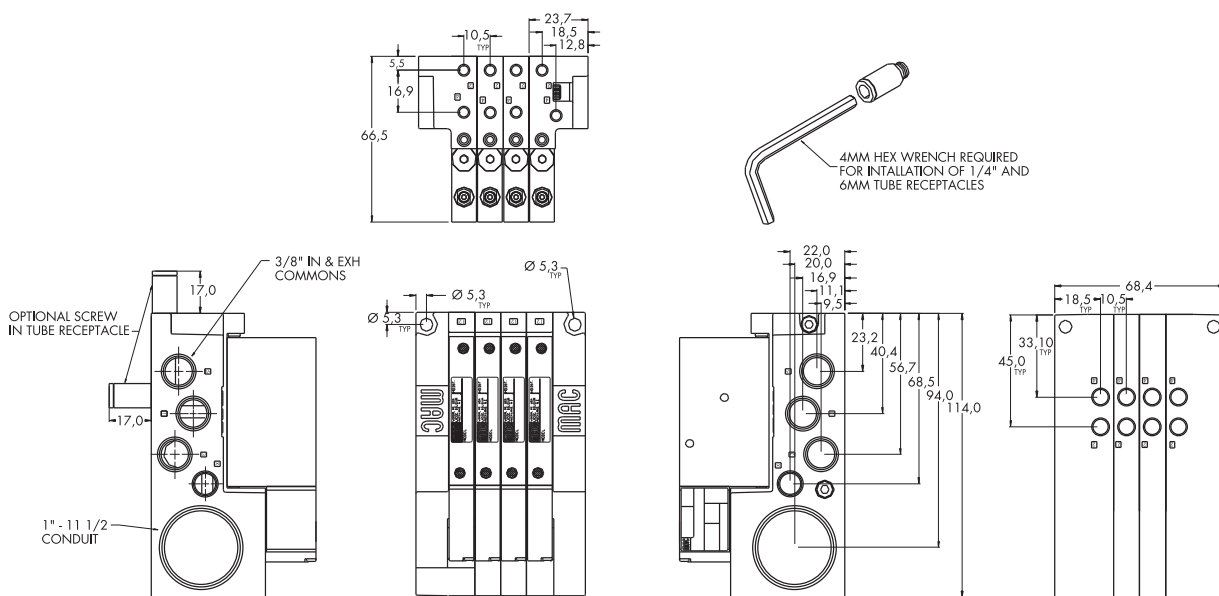
Above numbers are middle station manifold with side ports

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 Nl/min (Cv 0,4) – M5: 350 Nl/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 : FC42B-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

OPTIONS FOR NON PLUG-IN VALVES

Base type :

Individual base

42B-XXX-X**A**X-G**xxx-xxx**

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

Manifold base

42B-XXX-X**J**X-G**xxx-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

42B-RXX-XXX-G**xxx-xxx**

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

Base only :

42B-000-XXX (i.e. 42B-000-GAL) - Individual base

42B-000-XXX (i.e. 42B-000-GJL) - Manifold base

Pilot style :

42B-X**M**X-XXX-G**xxx-xxx**

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



Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Base type :

Individual base

42B-XXX-XAX-GxxP-xxx

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

Manifold base

42B-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

42B-RXX-XXX-GxxP-xxx

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

Base only :

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

- Individual base wired for a double solenoid

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

- Manifold base wired for a single solenoid

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

42B-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 :

42B-XXM-XXX-GxxP-xxx

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

Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

NON PLUG-IN SANDWICH REGULATORS

Gauge	Regulator "12" end Internal pilot	Regulator "12" end External pilot
No gauge port	PR42B-BAAA	PR42B-BBAA
With gauge Port	PR42B-BABA	PR42B-BBBA

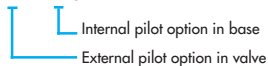
PLUG-IN SANDWICH REGULATORS

Gauge	Regulator "12" end Internal pilot	Regulator "12" end External pilot
No gauge port	PR42B-AAAA	PR42B-ABAA
With gauge Port	PR42B-AAABA	PR42B-ABBA

Notes:

- External pilot regulator required only when supply pressure (primary) to the valve is below the minimum operating pressure of the 42 series valve.
- When an internal pilot regulator is used with the 42 series valve, the valve should be ordered as external pilot and the base should be ordered as internal pilot. This ensures that the pilot supply is not regulated. If an internal pilot valve and base are used with an internal pilot regulator, the pilot supply is regulated.

Example: Valve 42B-AM D-AA A-GxxP-xxx with PR42B-AAAA



OPTIONS

Pressure range :

PR42B-AAAA

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2,7 bar

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	250 NL/min (Cv 0,25)

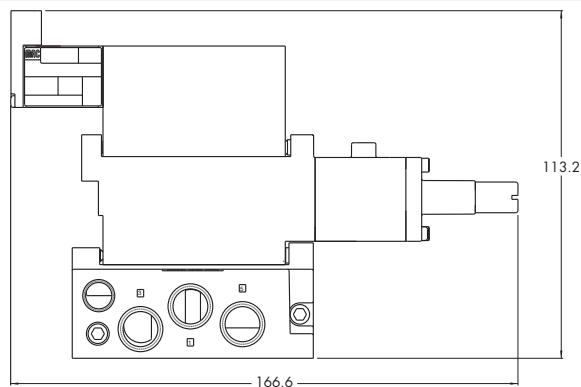
Spare parts :

- Pressure regulator (less sandwich block) : PR42B-C0xx • Gauge port plug: N-PE003
- M5 to 1/8" adapter : N-35005 • Gauge: 24177-160 (0 to 10,7 bar, 23 mm)
24177-100 (0 to 6,7 bar, 23 mm)
24177-060 (0 to 4 bar, 23 mm)

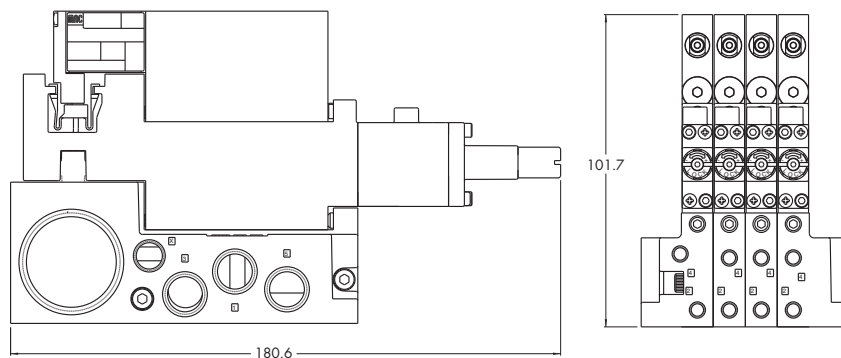
DIMENSIONS

Dimensions shown are metric (mm)

NON PLUG-IN



PLUG-IN



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤

G XX X-X XX
1 2 3 4

1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V~/1,0W	
DC	24V~/1,8W	
DD	24V~/2,5W	
DE	24V~/3,0W	
DF	24V~/4,0W	
DG	12V~/1,0W	
DJ	12V~/1,8W	
DK	12V~/2,5W	
DM	12V~/3,0W	
DN	12V~/4,0W	
DR	6V~/1,8W	
DS	6V~/3,0W	
EB	48V~/1,8W	
EC	48V~/3,0W	
ED	120V~/2,5W	
GD	12V~/0,5W	34 series only
GE	24V~/0,5W	34 series only
2. WIRE LENGTH		
G-XX X-X XX	WIRE LENGTH	
0	No lead wires (used only with "KJ" & "KM" connectors)	
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	
G	305 cm – 120" coil leads	
H	366 cm – 144" coil leads	
1	45 cm – 18" base leads	
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	

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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
ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

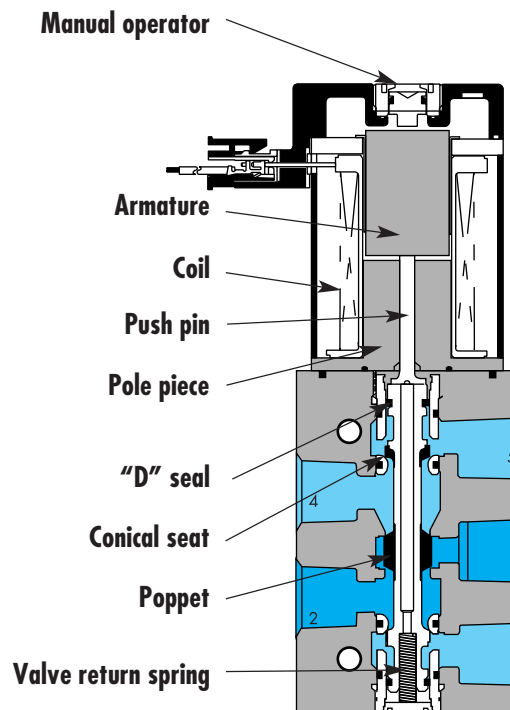
Direct solenoid and solenoid pilot operated valves

Individual mounting

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

Manifold mounting

Stacking	Manifold base "plug-in"
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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
5/2	G1/8" - G1/4"	500 NI/min	Inline

OPERATIONAL BENEFITS

1. Short stroke solenoid produces high energization shifting force.
2. High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
3. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
4. Four bonded balanced poppets on a one-piece valve stem.
5. End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
6. Exhaust seals are not under inlet pressure thus reducing friction.
7. Integral non-rising flow controls available on inline models.
8. 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

* Other options available, see page options.
Note: AC voltage requires connector with rectifier.

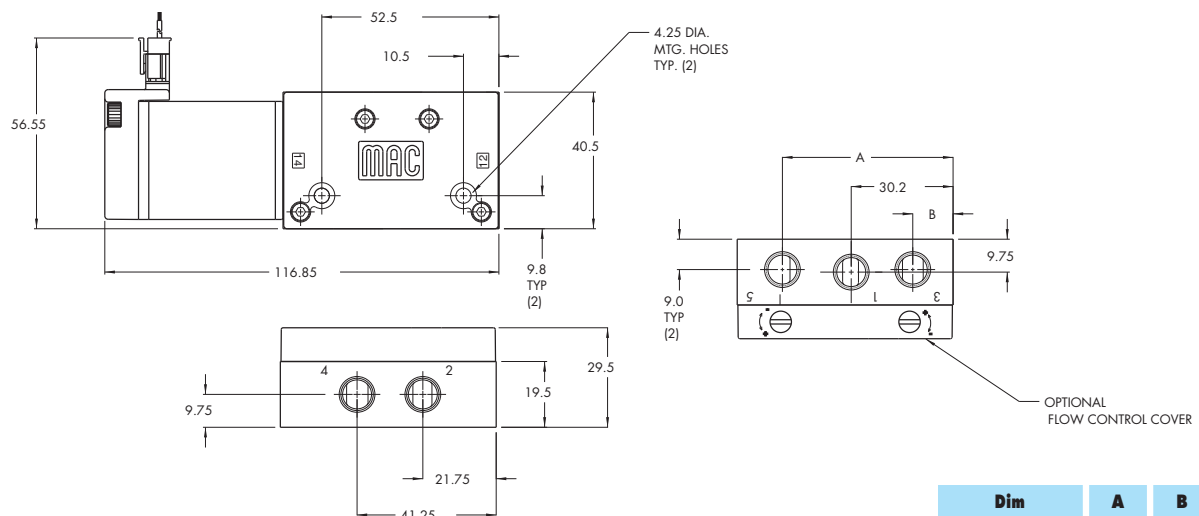
Options :
Mani Mount Option (w/o flow controls)

47A-CXO-Hxxx-xxx
C 1/8" BSPPL
D 1/4" BSPPL

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 Nl/min (Cv 0,50) – 2,4W : 350Nl/min (Cv 0,35) – 1,0W : 300 Nl/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-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

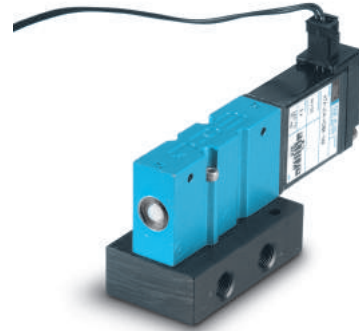


Direct solenoid and solenoid pilot operated valves


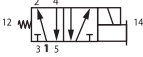
Function	Port size	Flow [Max]	Individual Mounting
5/2	G1/8" - G1/4"	500 NI/min	Sub-base non "plug-in"

OPERATIONAL BENEFITS

1. Short stroke solenoid produces high energization shifting force.
2. High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
3. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
4. Four bonded balanced poppets on a one-piece valve stem.
5. End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
6. Exhaust seals are not under inlet pressure thus reducing friction.
7. Integral non-rising flow controls available on inline models.
8. 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***

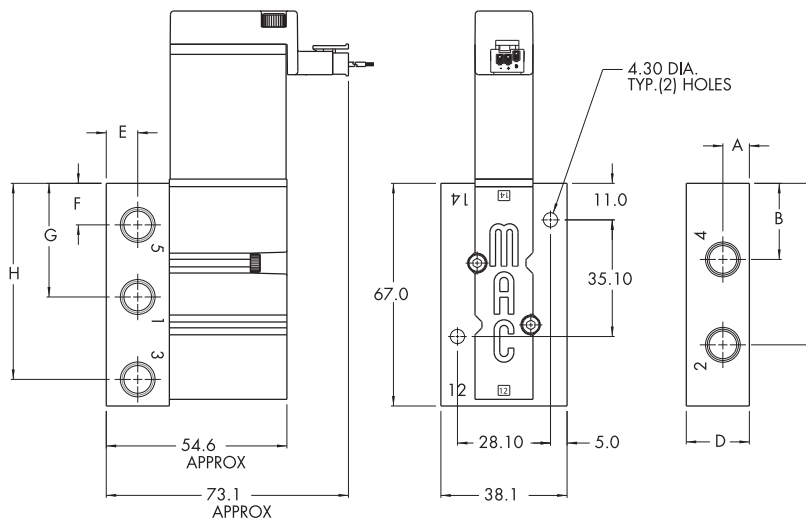
XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DA 24V~/5,2W	A 45 cm	1 Non-locking	MA Plug-in wire assembly
DB 24V~/2,4W	B 60 cm	2 Locking	MC Plug-in wire assembly with light
DC 24V~/1,8W	C 90 cm		BA Flying leads
DD 24V~/1,0W			BC Flying leads with light
AA 120V~/6,7W			MT Plug-in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

* Other options available, see page options.
Note: AC voltage requires connector with rectifier.

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 Nl/min (Cv 0,50) – 2,4W : 350Nl/min (Cv 0,35) – 1,0W : 300 Nl/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 :
- Pressure seal body to base: 16628
 - Mounting screw (x2): 35043
 - Flow control assembly (x2): N-04001

DIMENSIONS Dimensions shown are metric (mm)





Function	Port size	Flow [Max]	Manifold Mounting
5/2	G1/8" - G1/4"	500 NI/min	Stacking

OPERATIONAL BENEFITS

1. Short stroke solenoid produces high energization shifting force.
2. High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
3. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
4. Four bonded balanced poppets on a one-piece valve stem.
5. End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
6. Exhaust seals are not under inlet pressure thus reducing friction.
7. Integral non-rising flow controls available on inline models.
8. 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-SC0-H xxx-xxx	47A-TC0-H xxx-xxx
G1/4"	47A-SD0-H xxx-xxx	47A-TD0-H xxx-xxx

SOLENOID OPERATOR ►

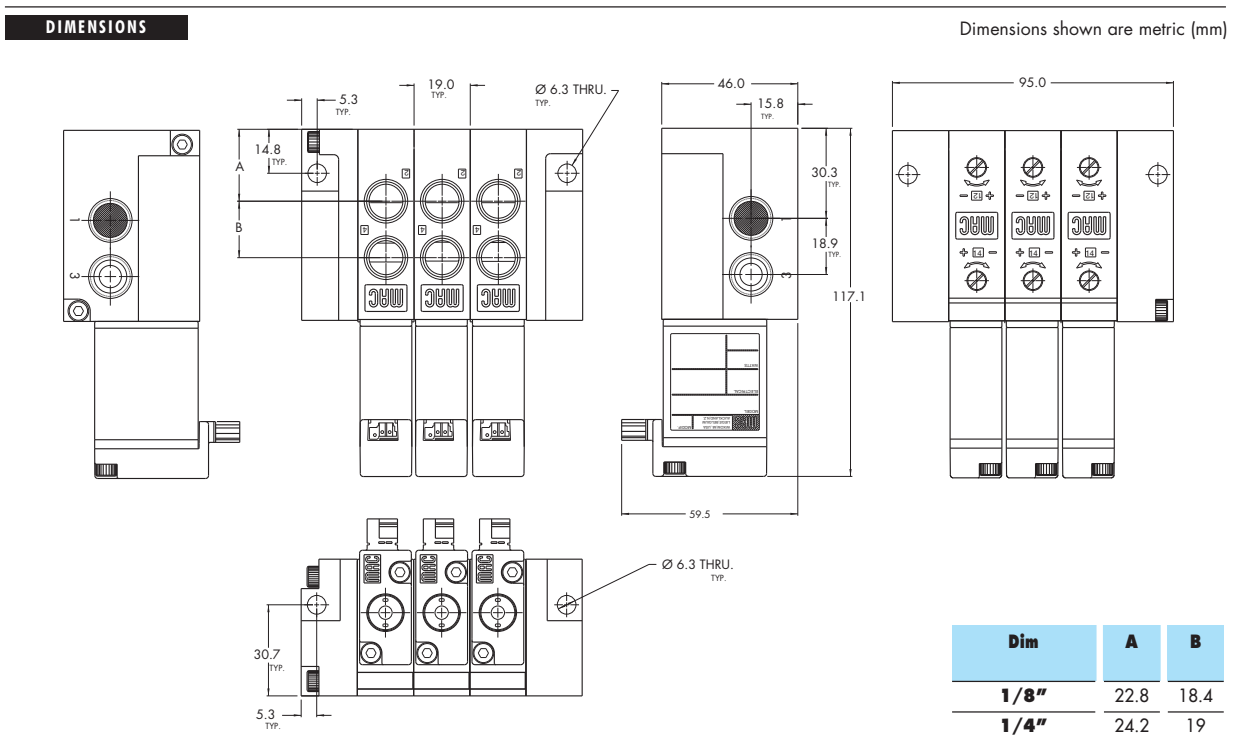
H **xxx-xxx***

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

* Other options available, see page options.
Note: AC voltage requires connector with rectifier.

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





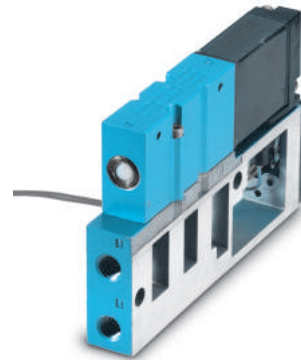
Direct solenoid and solenoid pilot operated valves

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

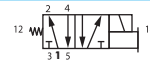
OPERATIONAL BENEFITS

1. Short stroke solenoid produces high energization shifting force.
2. High force return spring due to high force solenoid maximizes both energization and de-energization shifting forces.
3. Built-in wear compensation – valve stroke is shorter than solenoid stroke.
4. Four bonded balanced poppets on a one-piece valve stem.
5. End poppets seal first on conical seats and cushion inlet poppet, eliminating cutting.
6. Exhaust seals are not under inlet pressure thus reducing friction.
7. Integral non-rising flow controls available on inline models.
8. 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	
G1/8"	47A-L10-H xxP-xxx
G1/4"	47A-LCJ-H xxP-xxx
	47A-LDJ-H xxP-xxx



SOLENOID OPERATOR ➤

H **xx** P-**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

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

OPTIONS

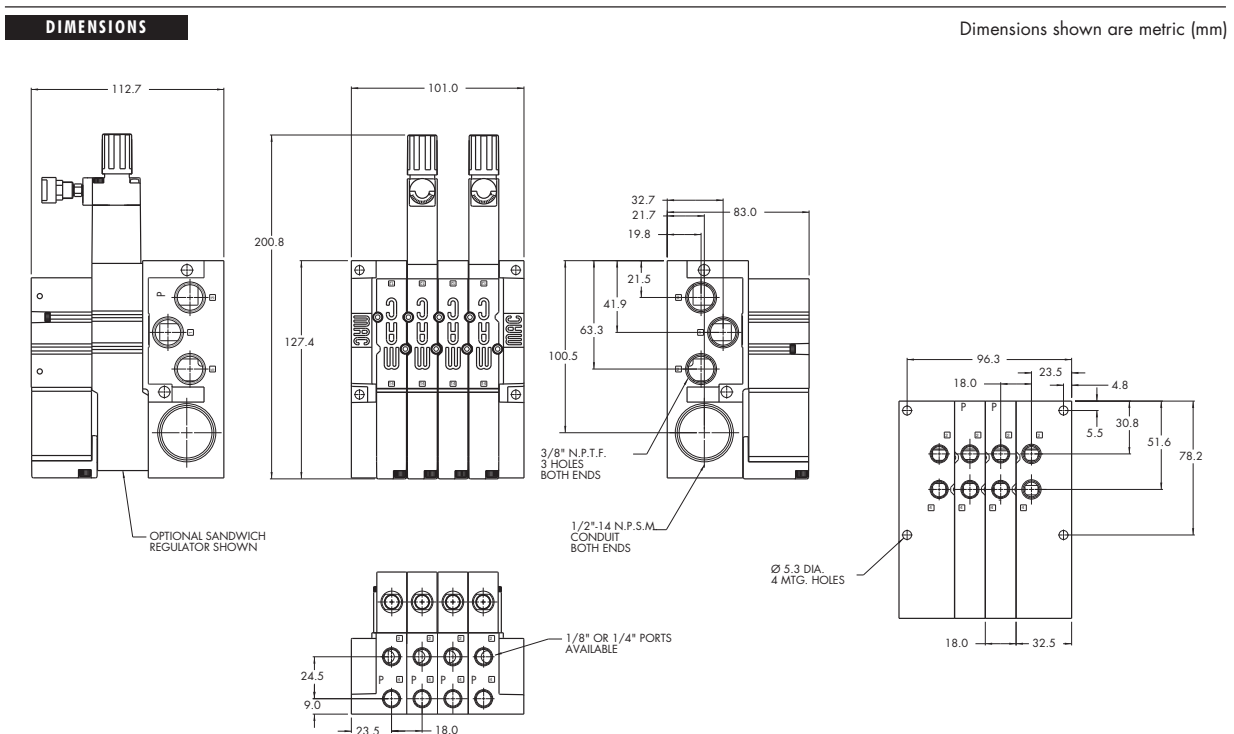
47A-**xxJ**-H-**xxx-xxx**

- 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.

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



Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES (KNOB ADJUSTMENT)

Gauge	Single pressure
No gauge port	PR47A-EAAA
With gauge Port	PR47A-EABA

REGULATORS FOR "NON PLUG-IN" VALVES (KNOB ADJUSTMENT)

Gauge	Single pressure
No Gauge port	PR47A-FAAA
With Gauge Port	PR47A-FABA

OPTIONS

Pressure range :

PR47A-**xxx****A**

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar

Adjustment for : Plug-in regulator

PR47A-**E****xxx**

- E** Knob
- A** Screwdriver slot
- J** Screwdriver slot with locknut

Non plug-in regulator

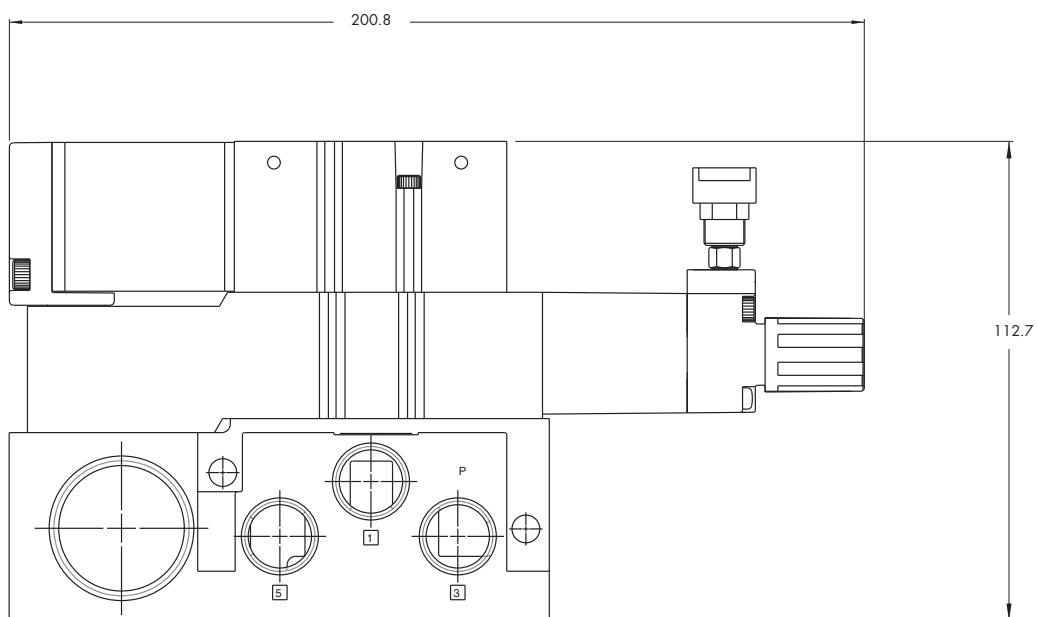
PR47A-**F****xxx**

- F** Knob
- B** Screwdriver slot
- K** Screwdriver slot with locknut

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar):	400 NL/min (Cv 0.4)

- Spare parts :
- Pressure regulator (less sandwich block) : PR47A-G0xx (knob), PR47A-C0xx (screwdriver slot), PR47A-L0xx (screwdriver slot with locknut)
 - Gauge: 24177-160 (0 to 10,7 bar, 23 mm)
24177-100 (0 to 6,7 bar, 23 mm)
24177-060 (0 to 4 bar, 23 mm)

DIMENSIONS Dimensions shown are metric (mm)



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ➤ **H XX X-X XX**
1 2 3 4

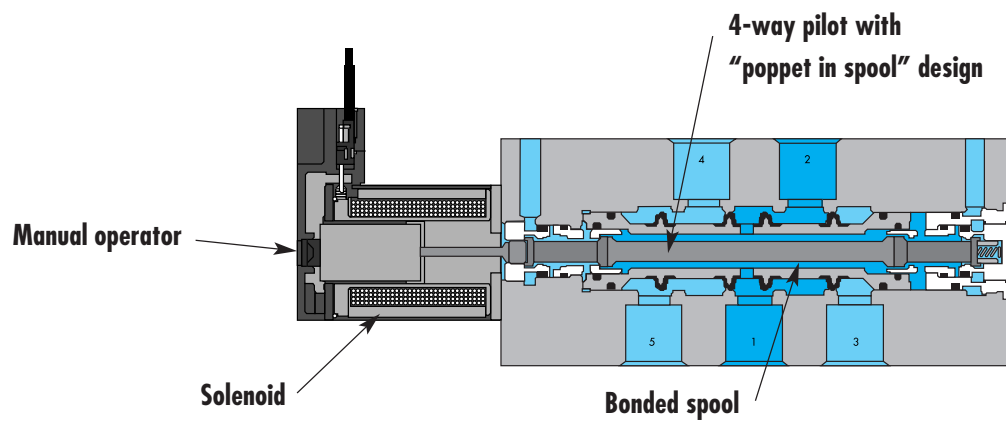
1. VOLTAGE		H-XX X-X XX	ELECTRICAL CONNECTION
H-XX X-X XX	VOLTAGE	BL	BA with full wave rectifier & ground wire
AA	120 V~/ 50Hz, 120 V~/ 60Hz (6,7 W) (use connector with rectifier)	BT	BA with full wave rectifier plus light
AB	220 V~/ 50Hz, 220 V~/ 60Hz (5,6 W) (use connector with rectifier)	BU	BA with full wave rectifier plus light & ground wire
AC	240 V~/ 50Hz, 240 V~/ 60Hz (5,8 W) (use connector with rectifier)	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	FA with full wave rectifier
DL	120 V=/6,3 W	FL	FA with full wave rectifier & ground wire
2. WIRE LENGTH		*FN	FA with suppression diode plus blocking diode
H-XX X-X XX	WIRE LENGTH	*FP	FA with suppression diode plus blocking diode & ground wire
O	No lead wire (use with "MJ", "MM" & "K" style connectors)	*FR	FA with suppression diode plus blocking diode plus light
A	45 cm = 18"	*FS	FA with suppression diode plus blocking diode & light & ground wire
B	60 cm = 24"	FT	FA with full wave rectifier plus light
C	90 cm = 36"	FU	FA with full wave rectifier plus light & ground wire
D	120 cm = 48"	MA	Solenoid plug-in wire assembly
E	180 cm = 72"	MB	MA with ground wire
F	240 cm = 96"	MC	MA with light
G	305 cm = 120"	MD	MA with light & ground wire
H	366 cm = 144"	ME	MA with suppression diode
3. MANUAL OPERATOR		MF	MA with suppression diode & ground wire
H-XX X-X XX	MANUAL OPERATOR	MG	MA with suppression diode plus light
O	No operator	MH	MA with suppression diode plus light & ground wire
1	Non-locking recessed	MK	MA with full wave rectifier
2	Locking recessed	ML	MA with full wave rectifier & ground wire
3	Non-locking extended	*MN	MA with suppression diode plus blocking diode
4	Locking extended	*MP	MA with suppression diode plus blocking diode & ground wire
4. ELECTRICAL CONNECTION		*MR	MA with suppression diode plus blocking diode & light
H-XX X-X XX	ELECTRICAL CONNECTION	*MS	MA with suppression diode plus blocking diode & light & ground wire
BA	Flying leads	MT	MA with full wave rectifier plus light
BB	BA with ground wire	MU	MA with full wave rectifier plus light & ground wire
BC	BA with light	MJ	Plug-in housing without wire assembly ('MA' option without wire assembly)
BD	BA with light & ground wire	MM	Plug-in housing without wire assembly ('MB' option without wire assembly)
BE	BA with suppression diode	KA	Mini square connector
BF	BA with suppression diode & ground wire	KB	KA with suppression diode
BG	BA with suppression diode plus light	KC	KA with M.O.V.
BH	BA with suppression diode plus light & ground wire	KD	KA with light
*BN	BA with suppression diode plus blocking diode	KE	KA with light & suppression diode
*BP	BA with suppression diode plus blocking diode & ground wire	KF	KA with light & M.O.V.
*BR	BA with suppression diode plus blocking diode & light	KJ	Mini square connector – male only
*BS	BA with suppression diode plus blocking diode & light & ground wire	KK	KJ with suppression diode
BK	BA with full wave rectifier	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	

Note: Blocking diode is located in the lead wire

Direct solenoid and solenoid pilot operated valves

Individual mounting

Inline

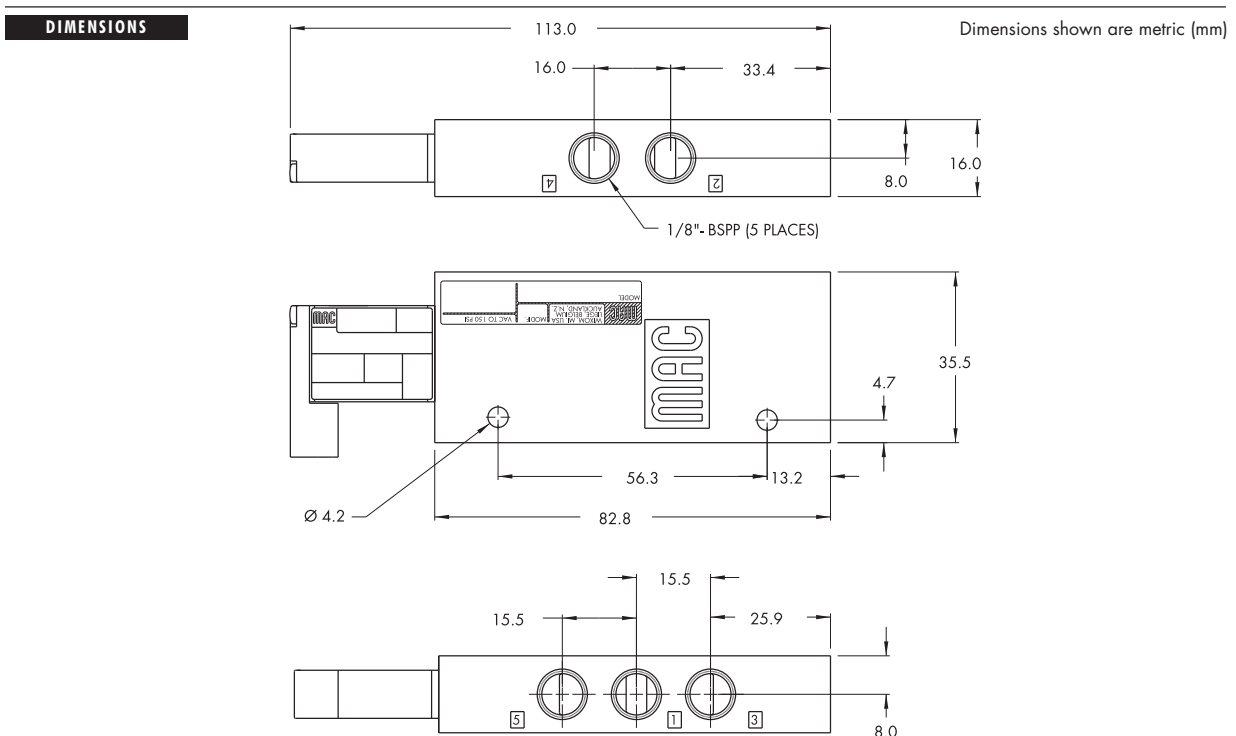


SERIES FEATURES

- High force MACSOLENOID®.
- Integral 4-way pilot with poppet inside the spool.
- Large flow in compact package.
- Single or dual pressure.
- Rectified AC voltage.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	1,7 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 :	1000 NI/min (Cv 1,0)
Coil :	Epoxy encapsulated – Class A wire - 100% E.D.
Voltage range :	-15% to +10% of nominal voltage
Power :	1.0 to 4.0 W

Options : NPTF Threads



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤

G XX X-X XX
1 2 3 4

1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V~/1,0W	
DC	24V~/1,8W	
DD	24V~/2,5W	
DE	24V~/3,0W	
DF	24V~/4,0W	
DG	12V~/1,0W	
DJ	12V~/1,8W	
DK	12V~/2,5W	
DM	12V~/3,0W	
DN	12V~/4,0W	
DR	6V~/1,8W	
DS	6V~/3,0W	
EB	48V~/1,8W	
EC	48V~/3,0W	
ED	120V~/2,5W	
GD	12V~/0,5W	34 series only
GE	24V~/0,5W	34 series only

2. WIRE LENGTH	
G-XX X-X XX	WIRE LENGTH
0	No lead wires (used only with "KJ" & "KM" connectors)
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
G	305 cm – 120" coil leads
H	366 cm – 144" coil leads
1	45 cm – 18" base leads
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

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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

ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

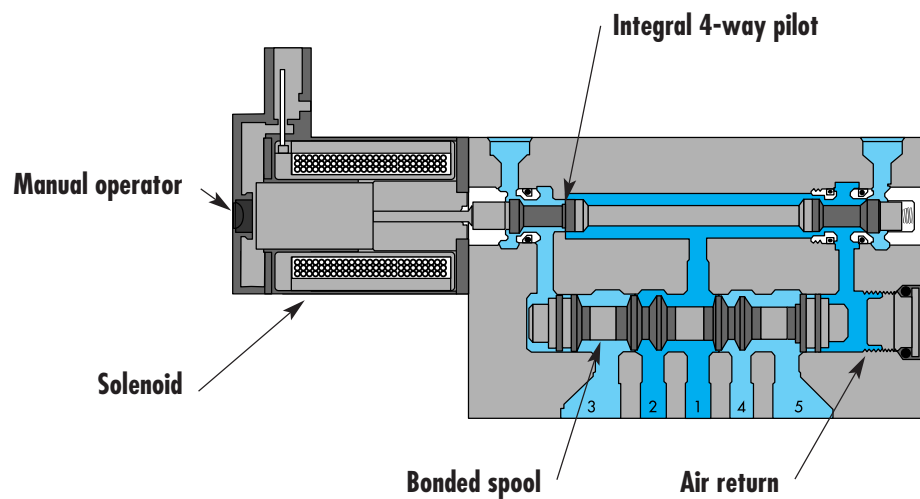
Direct solenoid and solenoid pilot operated valves

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"
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Manifold mounting

Manifold base non "plug-in"	Manifold base "plug-in"
--------------------------------	----------------------------



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.



Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual mounting
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.






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	48B-AMA-000-Gxxx-xxx	48B-BMA-000-Gxxx-xxx	48B-EMA-000-Gxxx-xxx	48B-FMA-000-Gxxx-xxx
	External	48B-AMD-000-Gxxx-xxx	48B-BMD-000-Gxxx-xxx	48B-EMD-000-Gxxx-xxx	48B-FMD-000-Gxxx-xxx
	G1/8"	Internal	48B-AMA-BAL-Gxxx-xxx	48B-EMA-BAL-Gxxx-xxx	48B-FMA-BAL-Gxxx-xxx
		External	48B-AMD-BAM-Gxxx-xxx	48B-EMD-BAM-Gxxx-xxx	48B-FMD-BAM-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	48B-CMB-000-Gxxx-xxx	48B-DMB-000-Gxxx-xxx	48B-HMB-000-Gxxx-xxx
		Supply #5 port	48B-CMC-000-Gxxx-xxx	48B-DMC-000-Gxxx-xxx	48B-HMC-000-Gxxx-xxx
	External		48B-CMD-000-Gxxx-xxx	48B-DMD-000-Gxxx-xxx	48B-HMD-000-Gxxx-xxx
G1/8"	Internal	Supply #3 port	48B-CMB-BAL-Gxxx-xxx	48B-DMB-BAL-Gxxx-xxx	48B-HMB-BAL-Gxxx-xxx
		Supply #5 port	48B-CMC-BAL-Gxxx-xxx	48B-DMC-BAL-Gxxx-xxx	48B-HMC-BAL-Gxxx-xxx
	External		48B-CMD-BAM-Gxxx-xxx	48B-DMD-BAM-Gxxx-xxx	48B-HMD-BAM-Gxxx-xxx

STANDARD SOLENOID OPERATOR >

G **XXX-XXX***

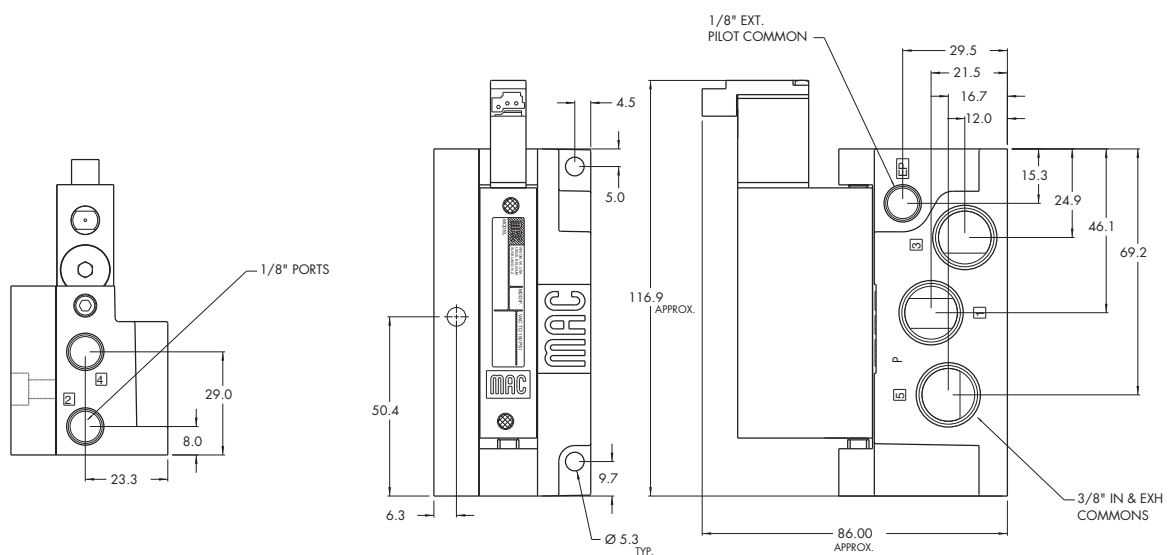
XX Voltage	X Wire length	X Manual operator	XX Electrical connection
AA 120 V~/2,5W	A 45 cm	1 Non-locking	BA Flying leads
DC 24 V~/1,8W	B 60 cm	2 Locking	BT Flying leads with light
DD 24 V~/2,5W	C 90 cm		GA MAC JAC Solenoid plug-in
DF 24 V~/4,0W			KA Mini connector
			KT Mini connector with light
			KD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

* Other options available, see page options.
Note : AC voltage requires connector with rectifier.

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, $\Delta P=1\text{bar}$) :	1/8" side ports: 1000 Nl/min (Cv 1,0) – 1/8" bottom ports : 1100 Nl/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: FC48B-BB
 - Sandwich regulator: see "regulators" section

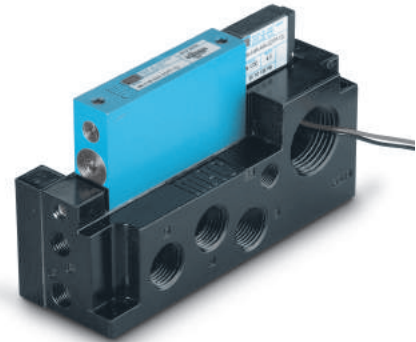
DIMENSIONS Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Individual mounting
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.


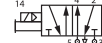



HOW TO ORDER

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 G1/8"	Internal	48B-AMA-000-GxxP-xxx	48B-BME-000-GxxP-xST	48B-EME-000-GxxP-xST	48B-FME-000-GxxP-xST
	External	48B-AMD-000-GxxP-xxx	48B-BMH-000-GxxP-xST	48B-EMH-000-GxxP-xST	48B-FMH-000-GxxP-xST
	Internal	48B-AMA-BAA-GxxP-xxx	48B-BME-BAC-GxxP-xST	48B-EME-BAC-GxxP-xST	48B-FME-BAC-GxxP-xST
	External	48B-AMD-BAB-GxxP-xxx	48B-BMH-BAD-GxxP-xST	48B-EMH-BAD-GxxP-xST	48B-FMH-BAD-GxxP-xST

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	48B-CMB-000-GxxP-xxx	48B-DMF-000-GxxP-xST	48B-HMF-000-GxxP-xST
		Supply #5 port	48B-CMC-000-GxxP-xxx	48B-DMG-000-GxxP-xST	48B-HMG-000-GxxP-xST
	External		48B-CMD-000-GxxP-xxx	48B-DMH-000-GxxP-xST	48B-HMH-000-GxxP-xST
G1/8"	Internal	Supply #3 port	48B-CMB-BAA-GxxP-xxx	48B-DMF-BAC-GxxP-xST	48B-HMF-BAC-GxxP-xST
		Supply #5 port	48B-CMC-BAA-GxxP-xxx	48B-DMG-BAC-GxxP-xST	48B-HMG-BAC-GxxP-xST
	External		48B-CMD-BAB-GxxP-xxx	48B-DMH-BAD-GxxP-xST	48B-HMH-BAD-GxxP-xST

STANDARD SOLENOID OPERATOR >

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

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

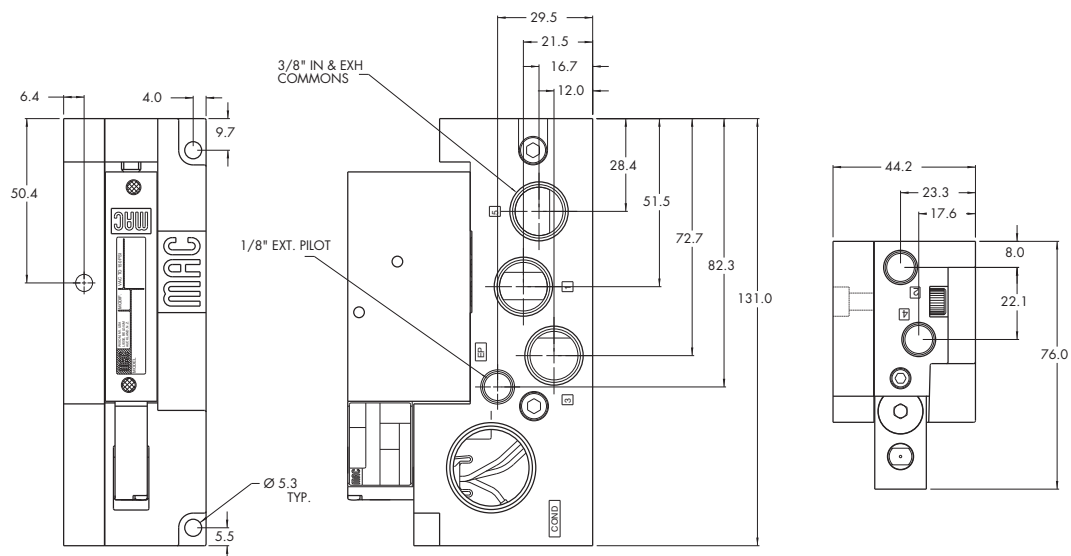
* Other options available, see page options.

Note : AC voltage requires connector with rectifier (for double solenoid consult factory).

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: FC48B-AB
 - Sandwich regulator: see "regulators" section

DIMENSIONS Dimensions shown are metric (mm)



Function Port size Flow [Max] Manifold mounting

5/2, 5/3

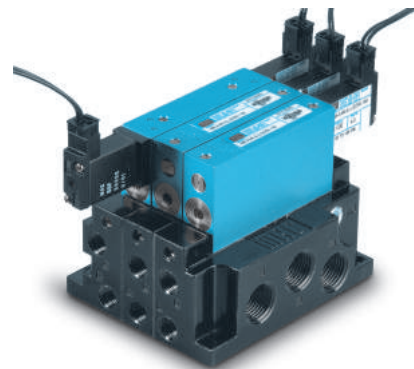
G1/8"

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.



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 G1/8"	Internal	48B-AMA-000-Gxxx-xxx	48B-BMA-000-Gxxx-xxx	48B-EMA-000-Gxxx-xxx	48B-FMA-000-Gxxx-xxx
	External	48B-AMD-000-Gxxx-xxx	48B-BMD-000-Gxxx-xxx	48B-EMD-000-Gxxx-xxx	48B-FMD-000-Gxxx-xxx
	Internal	48B-AMA-BJL-Gxxx-xxx	48B-BMA-BJL-Gxxx-xxx	48B-EMA-BJL-Gxxx-xxx	48B-FMA-BJL-Gxxx-xxx
	External	48B-AMD-BJM-Gxxx-xxx	48B-BMD-BJM-Gxxx-xxx	48B-EMD-BJM-Gxxx-xxx	48B-FMD-BJM-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 G1/8"	Internal	Supply #3 port 48B-CMB-000-Gxxx-xxx	48B-DMB-000-Gxxx-xxx	48B-HMB-000-Gxxx-xxx
	Internal	Supply #5 port 48B-CMC-000-Gxxx-xxx	48B-DMC-000-Gxxx-xxx	48B-HMC-000-Gxxx-xxx
	External	48B-CMD-000-Gxxx-xxx	48B-DMD-000-Gxxx-xxx	48B-HMD-000-Gxxx-xxx
	External	Supply #3 port 48B-CMB-BJL-Gxxx-xxx	48B-DMB-BJL-Gxxx-xxx	48B-HMB-BJL-Gxxx-xxx
		Supply #5 port 48B-CMC-BJL-Gxxx-xxx	48B-DMC-BJL-Gxxx-xxx	48B-HMC-BJL-Gxxx-xxx
	External	48B-CMD-BJM-Gxxx-xxx	48B-DMD-BJM-Gxxx-xxx	48B-HMD-BJM-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			GA	MAC JAC Solenoid plug-in
DF	24 V~/4,0W					KA	Mini connector
						KT	Mini connector with light
						KD	Mini connector with rectifier & light & ground

* Other options available, see page options.

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").

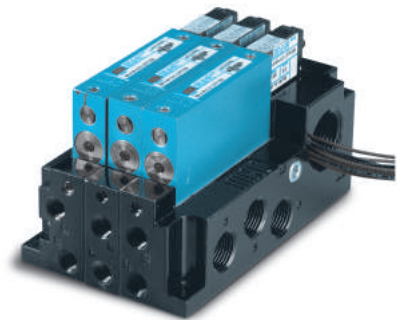


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
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	48B-AMA-000-GxxP-xxx	48B-BME-000-GxxP-xST	48B-EME-000-GxxP-xST	48B-FME-000-GxxP-xST
	External	48B-AMD-000-GxxP-xxx	48B-BMH-000-GxxP-xST	48B-EMH-000-GxxP-xST	48B-FMH-000-GxxP-xST
	G1/8"	Internal	48B-AMA-BJA-GxxP-xxx	48B-EME-BJC-GxxP-xST	48B-FME-BJC-GxxP-xST
		External	48B-AMD-BJB-GxxP-xxx	48B-EMH-BJD-GxxP-xST	48B-FMH-BJD-GxxP-xST

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	48B-CMB-000-GxxP-xxx	48B-DMF-000-GxxP-xST	48B-HMF-000-GxxP-xST
		Supply #5 port	48B-CMC-000-GxxP-xxx	48B-DMG-000-GxxP-xST	48B-HMG-000-GxxP-xST
	External		48B-CMD-000-GxxP-xxx	48B-DMH-000-GxxP-xST	48B-HMH-000-GxxP-xST
G1/8"	Internal	Supply #3 port	48B-CMB-BJC-GxxP-xxx	48B-DMF-BJC-GxxP-xST	48B-HMF-BJC-GxxP-xST
		Supply #5 port	48B-CMC-BJC-GxxP-xxx	48B-DMG-BJC-GxxP-xST	48B-HMG-BJC-GxxP-xST
	External		48B-CMD-BJD-GxxP-xxx	48AB-DMH-BJD-GxxP-xST	48B-HMH-BJD-GxxP-xST

Above numbers are middle station manifold with side ports

STANDARD SOLENOID OPERATOR ➤

G **xx** P-**xxx***

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

* Other options available, see page options.

Note : - AC voltage requires connector with rectifier (for double solenoid consult factory).

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

TECHNICAL DATA

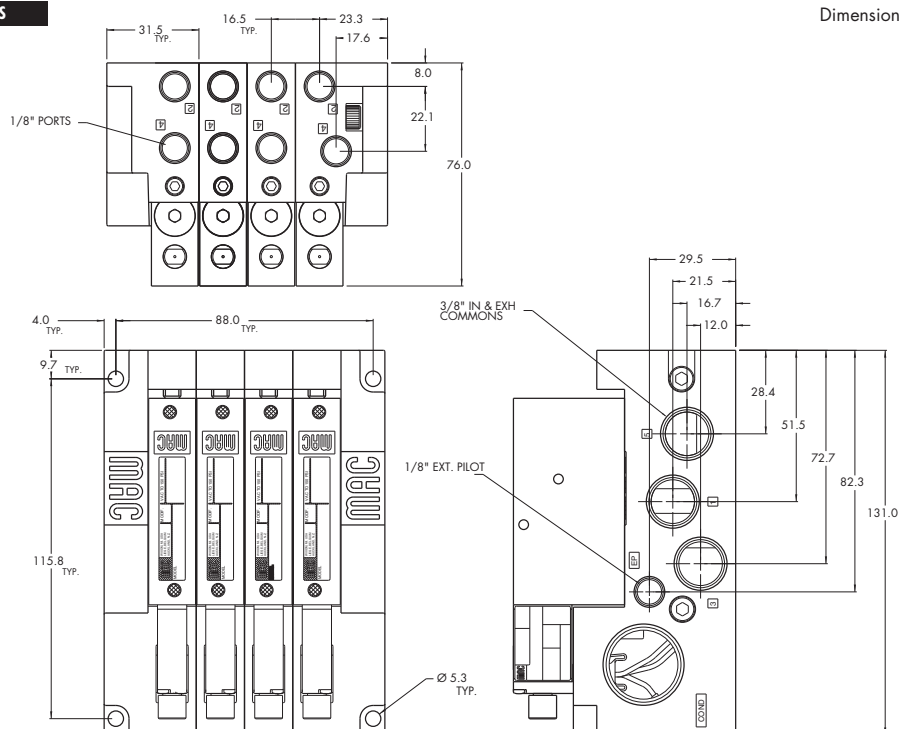
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 2 pos.: 1,3 to 8 bar - 3 pos.: 2,3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure :	2 position : 1,3 to 8 bar - 3 position : 2,3 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 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: FC48B-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

OPTIONS FOR NON PLUG-IN VALVES

Base type :

Individual base

48B-XXX-**AX**-G-XXX-XXX

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

Manifold base

48B-XXX-**XJX**-G-XXX-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

48B-**RXX**-XXX-G-XXX-XXX

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

Base only :

48B-000-XXX (i.e. 48B-000-BAL) - Individual base

48B-000-XXX (i.e. 48B-000-BJL) - Manifold base

Pilot style :

48B-**XX**X-XXX-G-XXX-XXX

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



Direct solenoid and solenoid pilot operated valves

OPTIONS FOR PLUG-IN VALVES

Base type :

Individual base

48B-XXX-**AX**-GxxP-xxx

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

Manifold base

48B-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

48B-**RXX**-XXX-GxxP-xxx

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

Base only :

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

- Individual base wired for a single solenoid valve

48B-000-XXX (i.e. 48B-000-BJC)

- Manifold base wired for a double solenoid valve

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

48B-XX**J**-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 :

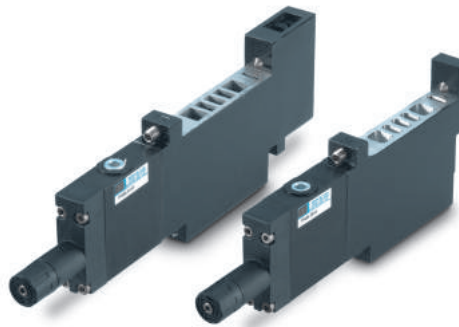
48B-XX**MX**-XXX-GxxP-xxx

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

Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

NON PLUG-IN SANDWICH REGULATORS (KNOB ADJUSTMENT)

Gauge	Regulator "12" end Internal pilot	Regulator "12" end External pilot
Gauge port	PR48B-BAAA	PR48B-BBAA

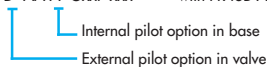
PLUG-IN SANDWICH REGULATORS (KNOB ADJUSTMENT)

Gauge	Regulator "12" end Internal pilot	Regulator "12" end External pilot
Gauge port	PR48B-AAAA	PR48B-ABAA

Notes:

- External pilot regulator required only when supply pressure (primary) to the valve is below the minimum operating pressure of the 48 series valve.
- When an internal pilot regulator is used with the 48 series valve, the valve should be ordered as external pilot and the base should be ordered as internal pilot. This ensures that the pilot supply is not regulated. If an internal pilot valve and base are used with an internal pilot regulator, the pilot supply is regulated.

Example: Valve 48B-AM D-AA A-GxxP-xxx with PR48B-AAAA



OPTIONS

Pressure range :

PR48B-xxx**A**

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar

Adjustment for : Plug-in regulator

PR48B-**A**xxx

- A** Knob
- D** Screwdriver slot
- G** Screwdriver slot with locknut

Non plug-in regulator

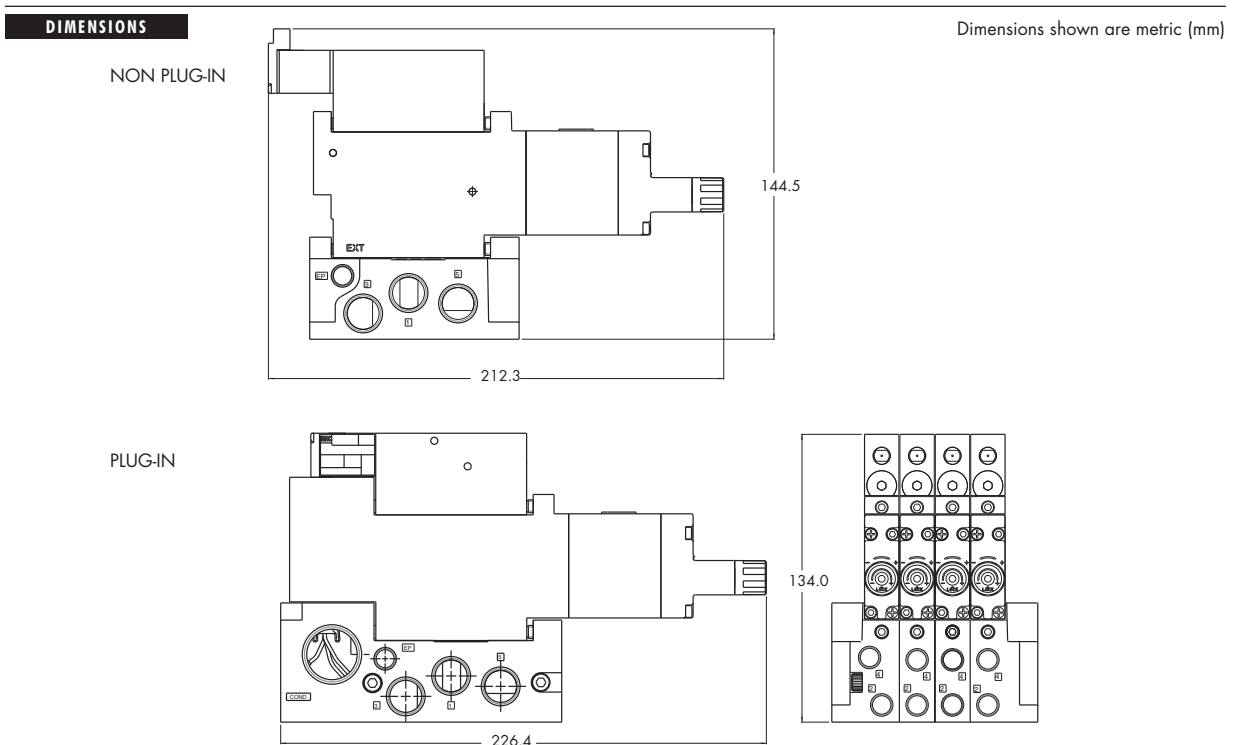
PR48B-**B**xxx

- B** Knob
- E** Screwdriver slot
- H** Screwdriver slot with locknut

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	800 NL/min (Cv 0,8)

Spare parts :

- Pressure regulator (less sandwich block) : PR48B-C0xx (knob), PR48B-F0xx (screwdriver slot), PR48B-J0xx (screwdriver slot with locknut)
- Gauge: 24177-160 (0 to 10,7 bar, 23 mm)
24177-100 (0 to 6,7 bar, 23 mm)
24177-060 (0 to 4 bar, 23 mm)



Codification table for voltages / Manual operator / Electrical connection

VALVE CODE ➤

G XX X-X XX
1 2 3 4

1. VOLTAGE		
G-XX X-X XX	VOLTAGE	
AA	120V~/2,5W	Requires electrical connector with rectifier
AC	24V~/4,0W	Requires electrical connector with rectifier
DA	24V=/1,0W	
DC	24V=/1,8W	
DD	24V=/2,5W	
DE	24V=/3,0W	
DF	24V=/4,0W	
DG	12V=/1,0W	
DJ	12V=/1,8W	
DK	12V=/2,5W	
DM	12V=/3,0W	
DN	12V=/4,0W	
DR	6V=/1,8W	
DS	6V=/3,0W	
EB	48V=/1,8W	
EC	48V=/3,0W	
ED	120V=/2,5W	
GD	12V=/0,5W	34 series only
GE	24V=/0,5W	34 series only
2. WIRE LENGTH		
G-XX X-X XX	WIRE LENGTH	
0	No lead wires (used only with "KJ" & "KM" connectors)	
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	
G	305 cm – 120" coil leads	
H	366 cm – 144" coil leads	
1	45 cm – 18" base leads	
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	

4. ELECTRICAL CONNECTION	
G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	BA with ground wire
BC	BA with light
BD	BA with light and ground wire
BE	BA with suppression diode
BF	BA with suppression diode and ground wire
BG	BA with suppression diode and light
BH	BA with suppression diode, light and ground wire
BN	BA with suppression diode and blocking diode
BP	BA with suppression diode, blocking diode and ground wire
BR	BA with suppression diode, blocking diode and light
BS	BA with suppression diode, blocking diode, light and ground wire
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 LED
GE	MAC JAC Solenoid plug-in with diode and LED
GF	MAC JAC Solenoid plug-in with MOV and LED
GG	MAC JAC Solenoid plug-in with rectifier
GH	MAC JAC Solenoid plug-in with rectifier and LED
KA	Mini connector
KB	KA with ground
KC	KA with rectifier and light
KD	KA with rectifier, light and ground
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
ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
G-XX X-X XX	PLUG-IN OPTIONS
SB	Base plug-in with ground
SC	Base plug-in with suppression & blocking diode
SD	Base plug-in with suppression & blocking diode & ground
SE	Base plug-in with MOV
SF	Base plug-in with MOV & ground
SG	Base plug-in with rectifier
SH	Base plug-in with rectifier & ground
SK	Base plug-in with light & ground
SL	Base plug-in with suppression & blocking diode & light
SM	Base plug-in with suppression & blocking diode with light & ground
SN	Base plug-in with MOV & light
SP	Base plug-in with MOV & light with ground
SR	Base plug-in with rectifier & light

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

MAC 400 Series

MAC

400 Series

5-way remote & solenoid pilot operated (5-way pilot)

Available configurations:	Individual inline, individual base mounted or manifold mounted bodies
Port sizes:	1/8", 1/4" ports
Flow:	Up to 1000 NI/min (1.0 Cv)
Pressure range:	Vacuum to 8 bar
Function:	5/2 (single & double operator), 5/3 (closed centre, open centre & pressure centre)
Operation:	Electrical / Remote air
Pilot valve:	DM / DP / DU / GM
Accessories:	Circuit bar / Shut-off valve / Flow controls



Table of contents

- *MAC 400 Series - Solenoid pilot operated valve*
- *MAC 400 Series - Remote air valve*
- *MAC 400 Series - Spool configurations*
- *MAC 400 Series - How to order*
- *MAC 400 Series - References for DM pilot valve*
- *MAC 400 Series - References for GM pilot valve*
- *MAC 400 Series - Codifi cati on electrical connecti on DM pilot valve (coil / connector configurations)*
- *MAC 400 Series - Codifi cati on electrical connecti on GM pilot valve (coil / connector configurations)*
- *MAC 400 Series - Dimensions*
- *MAC 400 Series - Repair kits (main ones)*
- *MAC 400 Series - Circuit bar®*

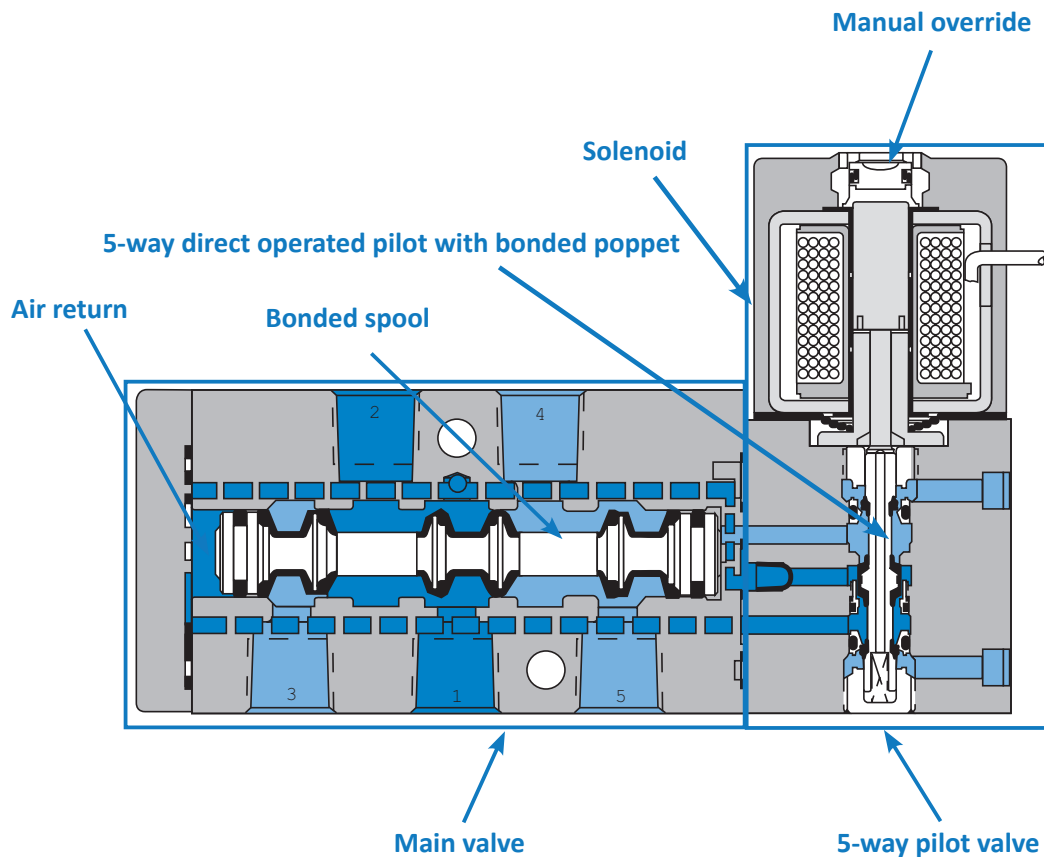
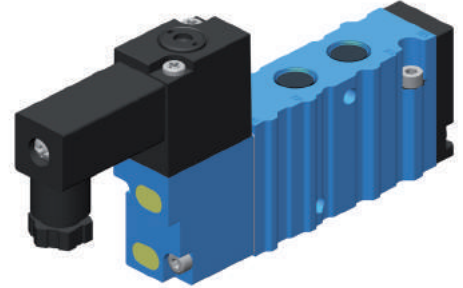
MAC 400 Series

MAC 400 Series - Solenoid pilot operated valve

5-way, 2 and 3 position, spool

Flow up to 1000 NI/min (1.0 Cv)

- ◇ MAC unique patented 5-way direct operating pilot valve
- ◇ The 5-way pilot develops maximum shifting forces both ways
- ◇ Short stroke with high flow
- ◇ Balanced spool, immune to variations of pressure, also provides high flow
- ◇ Bonded spool with minimum friction, shifting in a glass-like finished bore
- ◇ Wiping effect eliminates sticking
- ◇ Long service life
- ◇ Repair kit available for the complete valve



Valve with side ports, single operator, single pressure, internal pilot

MAC 400 Series

Technical data

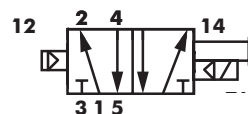
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Internal pilot - 2 position: 1.3 to 8 bar 3 position: 2.3 to 8 bar External pilot: vacuum to 8 bar
Pilot pressure:	2 position: 1.3 to 8 bar 3 position: 2.3 to 8 bar
Lubrication:	Not required, if used, select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to +50°C
Orifice:	6.2 mm
Flow (at 6 bar, ΔP=1 bar):	1000 NI/min (1.0 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (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:	24V=5.4W Energize: 7.3 ms De-energize: 5.3 ms 110V~/50Hz Energize: 8-12 ms De-energize: 7-11 ms

Solenoid pilot operated valve

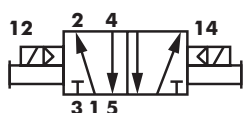
Single pressure models

5/2

Single operator

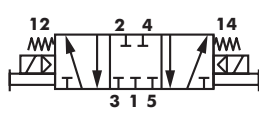


Double operator

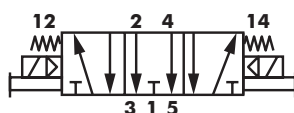


5/3

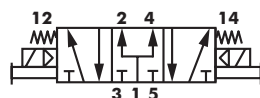
Closed centre



Open centre



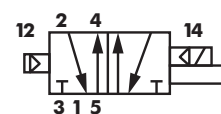
Pressure centre



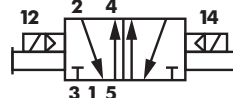
Dual pressure models

5/2

Single operator

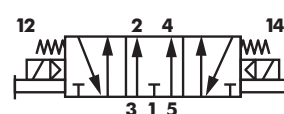


Double operator



5/3

Pressure centre



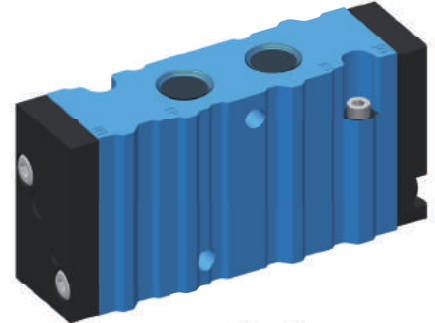
MAC 400 Series

MAC 400 Series - Remote air valve

5-way, 2 and 3 position, spool

Flow up to 1000 NI/min (1.0 Cv)

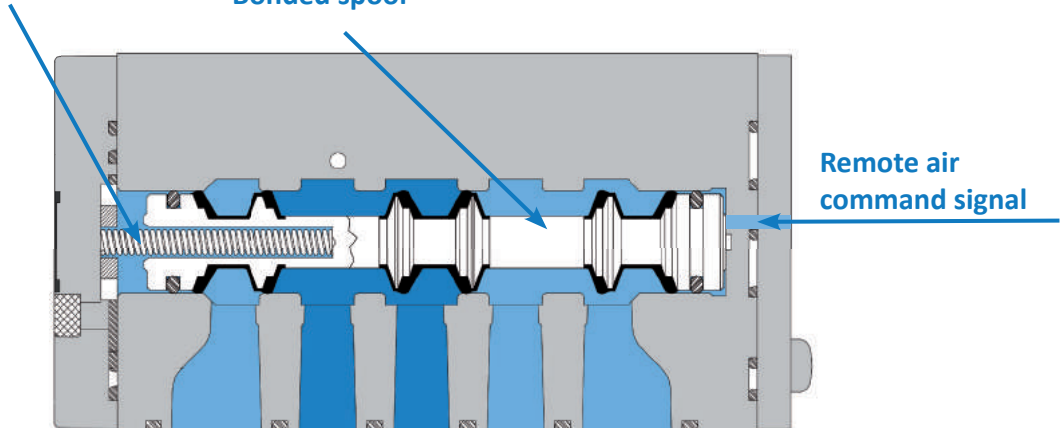
- ◇ Balanced spool, immune to variations of pressure, also provides high flow
- ◇ Bonded spool with minimum friction, shifting in a glass-like finished bore
- ◇ Short stroke with high flow
- ◇ Wiping effect eliminates sticking
- ◇ Long service life
- ◇ Repair kit available for the complete valve



Mechanical return spring

Bonded spool

Remote air
command signal



Valve with single remote operator, single pressure, 2 position, manifold

MAC 400 Series

Technical data

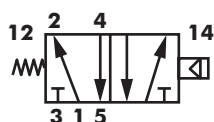
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Single op.: vacuum to 6.7 bar - Double op.: vacuum to 10 bar
Air signal pressure:	Single op.: 2.7 to 10 bar Double op.: 2 pos.: 1.3 to 10 bar, 3 pos.: 2.3 to 10 bar
Lubrication:	Not required, if used, select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to +50°C
Orifice:	6.2 mm
Flow (at 6 bar, ΔP=1 bar):	1000 NI/min (Cv 1.0)

Remote air valve

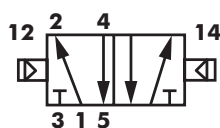
Single pressure models

5/2

Single operator

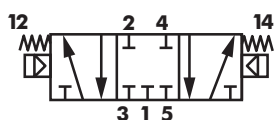


Double operator

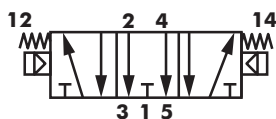


5/3

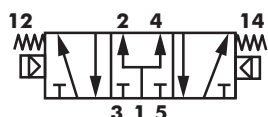
Closed centre



Open centre



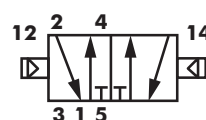
Pressure centre



Dual pressure models

5/2

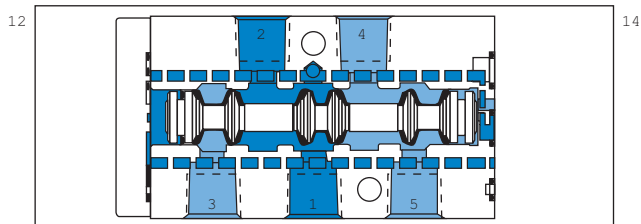
Double operator



MAC 400 Series

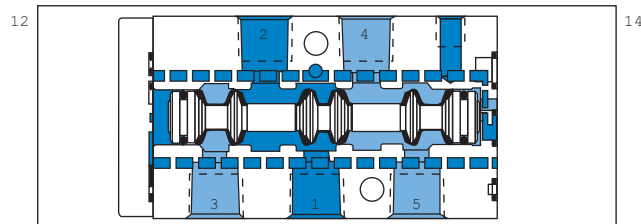
MAC 400 Series - Spool configurations

Internal Pilot



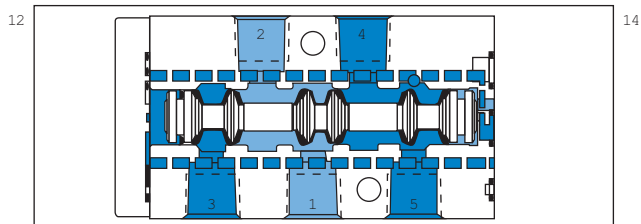
Single operator – Single inlet
Shown with 12 operator energized

Internal Pilot External Pilot Port



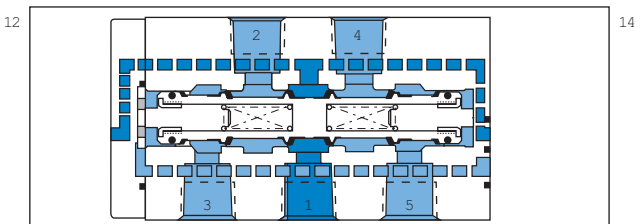
Single operator – Single inlet
Shown with 12 operator energized

Internal Pilot



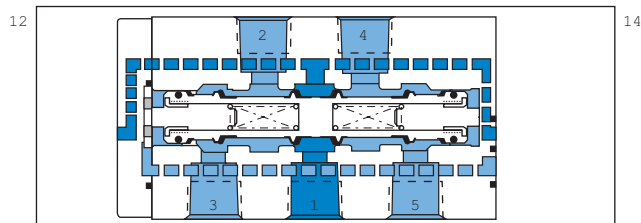
Single operator – Dual inlet
Shown with 12 operator energized

Internal Pilot



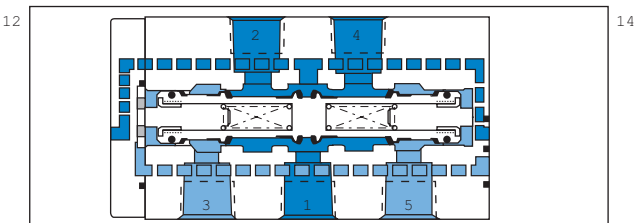
3 Position – Closed centre

Internal Pilot



3 Position – Open centre

Internal Pilot



3 Position – Pressure centre

MAC 400 Series

MAC 400 Series - How to order

How to order electrical version

4 X X A - X X X - X X - X X X X - X X X

REV.

PILOT VALVE - See below

SPOOL TYPE	BODY OPTIONS	PORT SIZE & THREAD TYPE IN. & CYL. **	BASE CONFIGURATION	INT./EXT. PILOT
0 Base only 1 Sgl. oper. sgl. pres. 2 Dbl. oper. sgl. pres. 3 Sgl. oper. dual pres. 4 Dbl. oper. dual pres. 5 3 pos. closed centre 6 3 pos. open centre 7 3 pos. sgl. pres. - pres. centre	0 Base only 1 Inline 5 port 3 Manifold body (base mount body) 4 Inline 5 port w/ memory 6 Manifold body w/ memory	0 Manifold body A 1/8" NPTF B 1/4" NPTF C 1/8" BSPPL D 1/4" BSPPL E 1/8" BSPTR F 1/4" BSPTR	0 Inline or manifold body A Base standard ports B Base standard ports w/ flow controls	A Internal pilot (on dual press. models pilot press. is from port #5) B External pilot (inline body) C Internal pilot (on dual press. models pilot press. is from port #3) D External & common external pilot (individual base & bar manifold)

** Ports 3 & 5 always are G1/8

How to order remote air version

4 X X A - X X X - RA

REV.

Remote Air

SPOOL TYPE	BODY OPTIONS	PORT SIZE & THREAD TYPE IN. & CYL. **	BASE CONFIGURATION	PILOT PORT
*1 Sgl. oper. sgl. pres. 2 Dbl. oper. sgl. pres. 4 Dbl. oper. dual pres. 5 3 pos. closed centre 6 3 pos. open centre 7 3 pos. sgl. pres. - pres. centre	1 Inline 5 port 3 Manifold body (base mount body)	0 Manifold body A 1/8" NPTF B 1/4" NPTF C 1/8" BSPPL D 1/4" BSPPL E 1/8" BSPTR F 1/4" BSPTR	0 Inline or manifold body A Base standard ports B Base standard ports w/ flow controls	H Pilot port size #10-32 J Pilot port size M5 (Metric)

* Requires MOD 1493

** Ports 3 & 5 always are G1/8

MAC 400 Series

MAC 400 Series - How to order

How to order solenoid operator

DM - D X X X - X X X*

VOLTAGE	LEAD WIRE LENGTH	MANUAL OVERRIDE	ELECTRICAL CONNECTOR*
JA 110 V~ / 50 Hz	O No wires	0 No operator	BA Flying leads
JB 220 V~ / 50 Hz	A 45 cm	1 Non-locking recessed	BK Flying leads with protection diode
JC 24 V~ / 50 Hz	B 60 cm	2 Locking recessed	BL Flying leads with protection varistor
DA 24 V= / 5.4 W	C 90 cm	3 Non-locking extended	JB DIN 43650 - Industrial type B connector (male + female)
DB 12 V= / 5.4 W	D 120 cm	4 Locking extended	JD DIN 43650 - Industrial type B connector with light (male + female)
DC 12 V= / 7.5 W	E 180 cm		JM DIN 43650 - Industrial type B connector (male only)
DD 24 V= / 7.3 W	F 240 cm		KA DIN 43650 - Industrial type C connector
FA 12 V= / 1.8 W	J Connector		KB DIN 43650 - Industrial type C connector with protection diode
FB 24 V= / 1.8 W			KJ DIN 43650 - Industrial type C connector with protection varistor
FE 12 V= / 2.4 W			TA Dual tabs with receptacles
FF 24 V= / 2.4 W			TB TA with protection diode

* Other options available, see page 11

GM - G X X X - X X X*

VOLTAGE	LEAD WIRE LENGTH	MANUAL OVERRIDE	ELECTRICAL CONNECTOR*
DC 24 V= / 1.8 W	O No wires	1 Non locking recessed	BA Flying leads w/o ground wire
DD 24 V= / 2.5 W	A 45 cm	3 Non locking extended	BB Flying leads w/ ground wire
DE 24 V= / 3.0 W	B 60 cm		BT Flying leads with LED light on top (no ground wire)
DF 24 V= / 4.0 W	C 90 cm		KA Plug-in wire assembly (no ground wire)
DJ 12 V= / 1.8 W	D 120 cm		KB Plug-in wire assembly w/ ground wire
DK 12 V= / 2.5 W	E 180 cm		KT Plug-in wire assembly w/ LED light on top
DM 12 V= / 3.0 W	F 240 cm		
DN 12 V= / 4.0 W	G 305 cm		
ED 120 V= / 2.5 W	H 366 cm		

* Other options available, see page 12

MAC 400 Series

MAC 400 Series - References for DM pilot valve

Codification table for voltages / Manual override / Electrical connection

VALVE CODE □ **-DM- XX X-X XX**
1 2 3 4

* From Lead wire length options choose A through F

Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.

1. VOLTAGE

D-XX X-X XX	VOLTAGE
DA	24V=/5,4W
DB	12V=/5,4W
DC	12V=/7,5W
DD	24V=/7,3W
DE	12V=/12,7W
DF	24V=/12,7W
DK	110V=/4,7W
DJ	28V=/5,2W
DL	64V=/6W
DM	36V=/5,3W
DN	6V=/6W
DR	90V=/6,6W
DS	110V=/7,3W
DT	75V=/5,6W
DP	48V=/5,8W
FA	12V=/1,8W
FB	24V=/1,8W
FE	12V=/2,4W
FF	24V=/2,4W
JA	120V~/60Hz, 110V~/50Hz (2,9W)
JB	240V~/60Hz, 220V~/50Hz (2,9W)
JC	24V~/60Hz, 24V~/50Hz (3,7W)
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)
JE	220V~/60Hz (3,4W)
JF	240V~/50Hz (2,8W)
JG	200V~/60Hz, 200V~/50Hz (3,9W)

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"
J	Connector

3. MANUAL OVERRIDE

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

4. ELECTRICAL CONNECTION

D-XX X-X XX	ELECTRICAL CONNECTION
BA*	Flying leads
BK*	BA with protection diode
BL*	BA with protection varistor
CA*	1/2" NPS conduit with flying leads
CM*	1/2" NPS metal conduit with flying leads
CN*	1/2" NPS metal conduit with flying leads & ground
CK	1/2" NPS conduit with diode
CL	1/2" NPS conduit with MOV
HA	MAC JAC plug-in
HB	MAC JAC plug-in with light
HC	MAC JAC plug-in with diode & light
JB	DIN 43650 - Industrial type B connector (male + female)
JD	DIN 43650 - Industrial type B connector with light (male + f.)
JM	DIN 43650 - Industrial type B connector (male only)
JA	DIN 43650 - Industrial type A connector (male + female)
JC	DIN 43650 - Industrial type A connector with light (male + f.)
JJ	DIN 43650 - Industrial type A connector (male only)
KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industrial type C connect. with protection diode
KC	DIN 43650 - Industrial type C conn. with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Indust. type C conn. w/ light & protection diode
KF	DIN 43650 - Indust. type C conn. w/ light & protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Indust. type C conn. w/ protection diode (male)
KL	DIN 43650 - Indust. type C conn. w/ protection varistor (male)
LA	ISO 15217 standard connector plug-in (male only)
LB	ISO 15217 standard connector plug-in with diode (male only)
LC	ISO 15217 standard connector plug-in with MOV (male only)
LJ	ISO 15217 standard connector plug-in (male only)
LK	ISO 15217 standard connector plug-in with diode (male only)
LL	ISO 15217 standard connector plug-in with MOV (male only)
PA	Pico M8 (male only)
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
RA	Euro (M12) - 2 Pin
RB	Euro (M12) - 2 Pin with diode (male only)
RC	Euro (M12) - 2 Pin with MOV
RD	Euro (M12) - 2 Pin with light
RE	Euro (M12) - 2 Pin with diode & light
RF	Euro (M12) - 2 Pin with MOV & light

MAC 400 Series

MAC 400 Series - References for GM pilot valve

Codification table for voltages / Manual override / Electrical connection

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

1. VOLTAGE

G-XX X-X XX	VOLTAGE
DC	24 V =/1.8 W
DD	24 V =/1.8 W
DE	24 V =/3.0 W
DF	24 V =/4.0 W
DJ	12 V =/1.8 W
DK	12 V =/2.5 W
DM	12 V =/3.0 W
DN	12 V =/4.0 W

2. WIRE LENGTH

G-XX X-X XX	WIRE LENGTH
0	No lead wire (use only with "KJ" & "KM" electrical 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	300 cm - 120"
H	365 cm - 144"

3. MANUAL OVERRIDE

G-XX X-X XX	MANUAL OPERATOR
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

4. ELECTRICAL CONNECTION

G-XX X-X XX	ELECTRICAL CONNECTION
BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with LED light parallel to leads
BD	Flying leads with LED light parallel to leads & ground wire
BE	Flying leads with suppression diode
BF	Flying leads with supp. diode & ground wire
BG	Flying leads with supp. diode plus LED light parallel to leads
BH	Flying leads with supp. diode plus LED light parallel to leads & ground wire
BN	Flying leads with supp. diode plus blocking diode
BP	Flying leads w/ supp. diode plus blocking diode & ground wire
BR	Flying leads w/ supp. diode plus blocking diode & LED light parallel to leads
BS	Flying leads with supp. diode plus blocking diode & LED light parallel to leads & Ground Wire

BT	Flying leads with LED light on top
BU	Flying leads with LED light on top & ground wire
BV	Flying leads with supp. diode plus LED light on top
BW	Flying leads w/ supp. diode plus LED light on top & ground wire
BX	Flying leads w/ supp. diode plus blocking diode & LED on top
BY	Flying leads with supp. diode plus blocking diode & LED on top & ground wire

4. ELECTRICAL CONNECTION

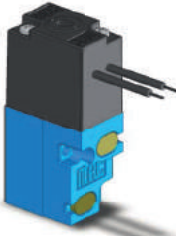
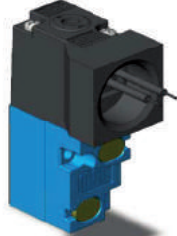
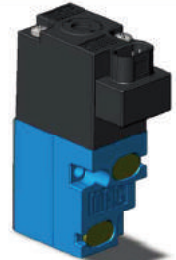
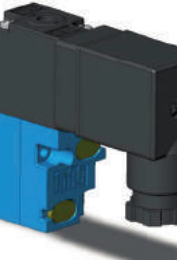

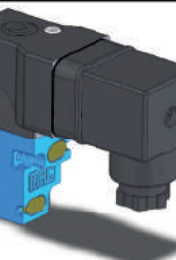
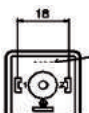
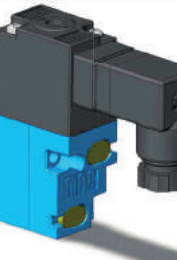
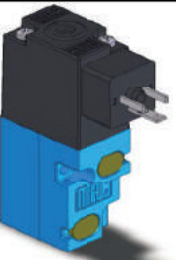

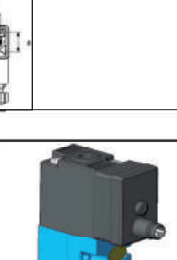

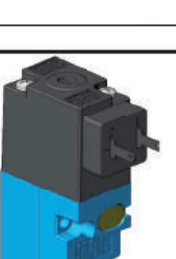
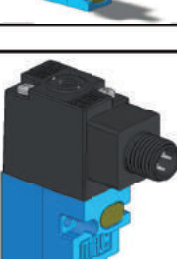
G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
GA*	MAC JAC Solenoid plug-in
GB*	MAC JAC Solenoid plug-in with diode
GC*	MAC JAC Solenoid plug-in with MOV
GD*	MAC JAC Solenoid plug-in with light
GE*	MAC JAC Solenoid plug-in with diode & light
GF*	MAC JAC Solenoid plug-in with MOV & light
GG*	MAC JAC Solenoid plug-in with rectifier
GH*	MAC JAC Solenoid plug-in with rectifier & 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 LED (male only)
GN*	MAC JAC Solenoid plug-in with diode & LED (male only)
GP*	MAC JAC Solenoid plug-in with MOV & LED (male only)
GR*	MAC JAC Solenoid plug-in with rectifier (male only)
GS*	MAC JAC Solenoid plug-in with rectifier & LED (male only)
HA	Circuit board plug-in w/ full wave rectifier & LED (w/ ground wire)
HD	Same as "HA" without lead wire assembly
KA	Plug-in wire assembly
KB	Plug-in wire assembly with ground wire
KC	Solenoid plug-in wire assembly with rectifier and LED
KD	Solenoid plug-in wire ass. w/ rectifier and LED w/ ground
KE	Plug-in wire assembly w/ suppression diode
KF	Plug-in wire assembly w/ suppression diode & ground wire
KJ	Plug-in without wire assembly for "KA" above
KM	Plug-in without wire assembly for "KB" above
KN	Plug-in wire assembly w/ suppr. diode plus blocking diode
KP	Plug-in wire ass. w/ suppr. diode + blocking diode & ground wire
KT	Plug-in wire assembly with LED light on top (no ground wire)
KU	Plug-in wire assembly with LED light on top & ground wire
KV	Plug-in wire assembly with supp. diode plus LED light on top
KW	Plug-in wire ass. w/ supp. diode + LED light on top & ground wire
KX	Plug-in wire ass. w/ supp. diode + block. diode & LED light on top
KY	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top & ground wire
PA	Pico
TJ	Dual Tabs - Mini Plug-in

Note: Blocking diode is located in the lead wire

* MAC JAC Connector not available with AC Voltage options

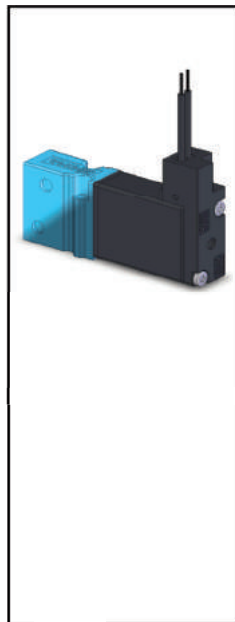
MAC 400 Series

MAC 400 Series - Codification electrical connection DM pilot valve (coil / connector configurations)

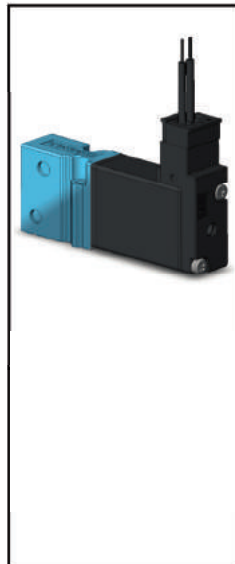
	<p>BA* Flying leads</p> <p>BK* BA with protection diode</p> <p>BL* BA with protection varistor</p> <p>* From lead wire length options choose</p>		<p>CA* 1/2" NPS conduit with flying leads</p> <p>CM* 1/2" NPS metal conduit with flying leads</p> <p>CN* 1/2" NPS metal conduit with flying leads & ground</p> <p>CK 1/2" NPS conduit with diode</p> <p>CL 1/2" NPS conduit with MOV</p> <p>* From lead wire length options choose</p>
	<p>HA MAC JAC plug-in</p> <p>HB MAC JAC plug-in with light</p> <p>HC MAC JAC plug-in with diode & light</p>		<p>JB DIN 43650 - Industrial type B connector (male + female)</p> <p>JD DIN 43650 - Industrial type B connector with light (male + female)</p> <p>JM DIN 43650 - Industrial type B connector (male only)</p> <p>11mm pin spacing</p> 
	<p>JA DIN 43650 - Industrial type A connector (male + female)</p> <p>JC DIN 43650 - Industrial type A connector with light (male + female)</p> <p>JJ DIN 43650 - Industrial type A connector (male only)</p> <p>Form A - 18mm pin spacing</p> 		<p>KA DIN 43650 - Industrial type C connector</p> <p>KB DIN 43650 - Industrial type C connector with protection diode</p> <p>KC DIN 43650 - Industrial type C connector with protection varistor</p> <p>KD DIN 43650 - Industrial type C connector with light</p> <p>KE DIN 43650 - Industrial type C connector with light and protection diode</p> <p>KF DIN 43650 - Industrial type C connector with light and protection varistor</p> <p>KG DIN 43650 - Industrial type C connector with light & diode</p> <p>KJ DIN 43650 - Industrial type C connector (male only)</p> <p>KK DIN 43650 - Industrial type C connector with protection diode (male only)</p> <p>KL DIN 43650 - Industrial type C connector with protection varistor (male only)</p>
	<p>LA ISO 15217 standard connector plug-in (male only)</p> <p>LB ISO 15217 standard connector plug-in with diode (male only)</p> <p>LC ISO 15217 standard connector plug-in with MOV (male only)</p> <p>LJ ISO 15217 standard connector plug-in (male only)</p> <p>LK ISO 15217 standard connector plug-in with diode (male only)</p> <p>LL ISO 15217 standard connector plug-in with MOV (male only)</p> 		<p>PA Pico M8 (male only)</p>  <p>M* 2-pin thread or snap fit</p>
	<p>TA Dual tabs with receptacles</p> <p>TB TA with protection diode</p> <p>TD TA with light</p> <p>TE TA with light and protection diode</p> <p>TJ Dual tabs (male only)</p> <p>TK TJ with protection diode</p> <p>TM TJ with light</p> <p>TN TJ with light and protection diode</p>		<p>RA Euro (M12) - 2 Pin</p> <p>RB Euro (M12) - 2 Pin with diode (male only)</p> <p>RC Euro (M12) - 2 Pin with MOV</p> <p>RD Euro (M12) - 2 Pin with light</p> <p>RE Euro (M12) - 2 Pin with diode & light</p> <p>RF Euro (M12) - 2 Pin with MOV & light</p>

MAC 400 Series

MAC 400 Series - Codification electrical connection GM pilot valve (coil / connector configurations)



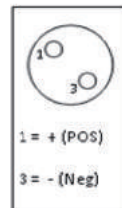
BA	Flying leads
BB	Flying leads with ground wire
BC	Flying leads with LED light parallel to leads
BD	Flying leads with LED light parallel to leads & ground wire
BE	Flying leads with suppression diode
BF	Flying leads with supp. diode & ground wire
BG	Flying leads with supp. diode plus LED light parallel to leads
BH	Flying leads with supp. diode plus LED light parallel to leads & ground wire
BN	Flying leads with supp. diode plus blocking diode
BP	Flying leads with supp. diode plus blocking diode & ground wire
BR	Flying leads with supp. diode plus blocking diode & LED light parallel to leads
BS	Flying leads with supp. diode plus blocking diode & LED light parallel to leads & Ground Wire
BT	Flying leads with LED light on top
BU	Flying leads with LED light on top & ground wire
BV	Flying leads with supp. diode plus LED light on top
BW	Flying leads with supp. diode plus LED light on top & ground wire
BX	Flying leads with supp. diode plus blocking diode & LED on top
BY	Flying leads with supp. diode plus blocking diode & LED on top & ground wire



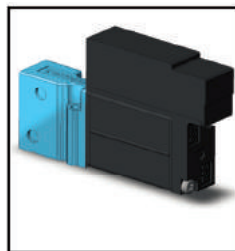
KA	Plug-in wire assembly
KB	Plug-in wire assembly with ground wire
KC	Solenoid plug-in wire assembly with rectifier and LED
KD	Solenoid plug-in wire assembly with rectifier and LED with ground
KE	Plug-in wire assembly w/ suppression diode
KF	Plug-in wire assembly w/ suppression diode & ground wire
KJ	Plug-in without wire assembly for "KA" above
KM	Plug-in without wire assembly for "KB" above
KN	Plug-in wire assembly with suppression diode plus blocking diode
KP	Plug-in wire assembly with suppression diode plus blocking diode & ground wire
KT	Plug-in wire assembly with LED light on top (no ground wire)
KU	Plug-in wire assembly with LED light on top & ground wire
KV	Plug-in wire assembly with supp. diode plus LED light on top
KW	Plug-in wire assembly with supp. diode plus LED light on top & ground wire
KX	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top
KY	Plug-in wire assembly with suppression diode plus blocking diode & LED light on top & ground wire



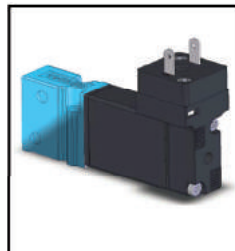
GA*	MAC JAC Solenoid plug-in
GB*	MAC JAC Solenoid plug-in with diode
GC*	MAC JAC Solenoid plug-in with MOV
GD*	MAC JAC Solenoid plug-in with light
GE*	MAC JAC Solenoid plug-in with diode & light
GF*	MAC JAC Solenoid plug-in with MOV & light
GG*	MAC JAC Solenoid plug-in with rectifier
GH*	MAC JAC Solenoid plug-in with rectifier & 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 LED (male only)
GN*	MAC JAC Solenoid plug-in with diode & LED (male only)
GP*	MAC JAC Solenoid plug-in with MOV & LED (male only)
GR*	MAC JAC Solenoid plug-in with rectifier (male only)
GS*	MAC JAC Solenoid plug-in with rectifier & LED (male only)
* MAC JAC Connector not available with AC Voltage options	

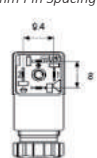


PA	Pico
M* 2-Pin Thread or Snap Fit	
8mm	



HA	Circuit board plug-in with full wave rectifier & LED (with ground wire)
HD	Same as "HA" without lead wire assembly



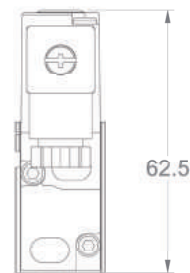
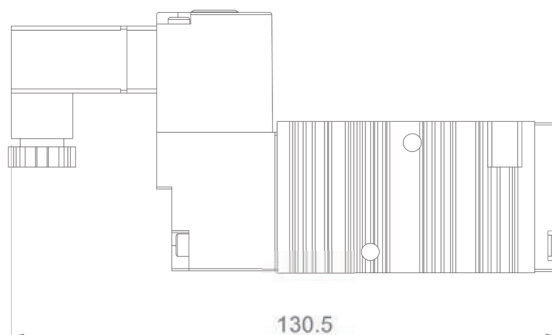
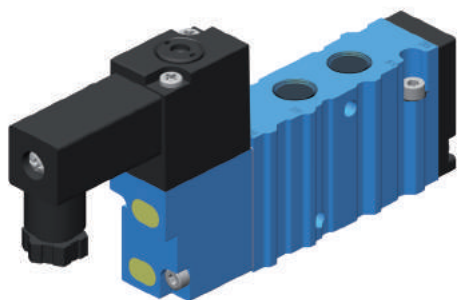
TJ	Dual Tabs - Mini Plug-in
MICRO DIN 43650-Industrial Standard C	
9.4mm Pin Spacing	
	

MAC 400 Series

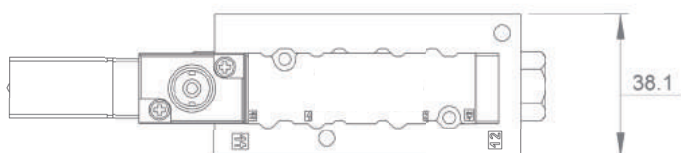
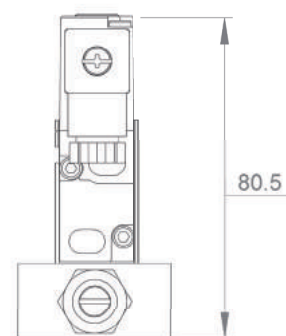
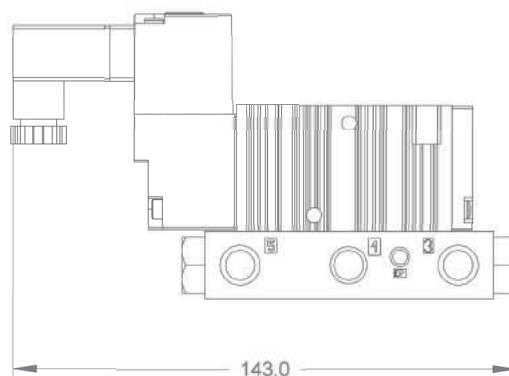
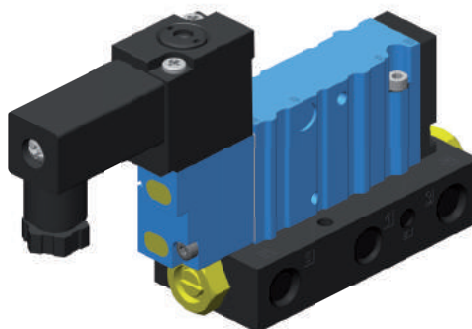
MAC 400 Series - Dimensions

400 Series - Inline valve

All dimensions are in mm



400 Series - Individual base



MAC 400 Series

MAC 400 Series - Repair kits (main ones)

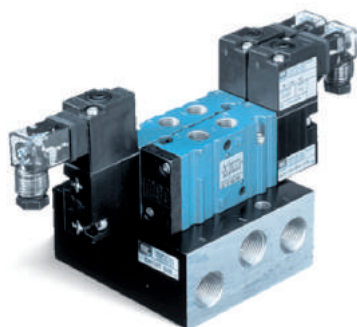
PART REFERENCE	DESCRIPTION
K-04001	Repair kit 2 position, single pressure, single operator
K-04001-01	Repair kit 2 position, single pressure, single operator with memory spring
K-04002	Repair kit 2 position, single pressure, double operator
K-04003	Repair kit 2 position, dual pressure, single operator
K-04003-01	Repair kit 2 position, dual pressure, single operator with memory spring
K-04004	Repair kit 2 position, dual pressure, double operator
K-04005	Repair kit 3 position, closed centre, single pressure
K-04006	Repair kit 3 position, open centre, single pressure
K-04007	Repair kit 3 position, single pressure, pressure centre
S-04001	Spool assembly 2 position, single pressure
S-04002	Spool assembly 2 position, single pressure - memory spring type
S-04003	Spool assembly 2 position dual pressure
S-04004	Spool assembly 2 position dual pressure - memory spring type
S-04005	Spool assembly 3 position, single pressure, closed centre
S-04006	Spool assembly 3 position, single pressure, open centre
S-04007	Spool assembly 3 position, single pressure, pressure centre
DM-D...-...	Complete pilot valve (45 series type)
GM-G...-...	Complete pilot valve (44 series type)
16524	Pressure seal - pilot valve to body
16525	Body to base pressure seal (manifold body)
17013-01	O-Ring (2x) with manifold base (inline body)
17015-01	O-Ring (1x) port seal with manifold base (inline body)

MOST COMMON MODIFICATIONS	DESCRIPTION
1080	Namur interface
T65C	High temperatures
532B	Washdown IP65
0650	Food applications

For other modifications, please consult factory

MAC 400 Series

MAC 400 Series - Circuit bar®



**MID PROFILE CIRCUIT BAR
CYLINDER PORTS IN VALVE**



**ADD-A-UNIT STATIONS
FOR CBM404A BAR**

Design description

General

The 400 series circuit bar® is available in five different configurations. The Low Profile version (CBM401A & CBM402A), the Mid Profile version (CBM403A & CBM404A), and the High Profile version (CBM405A). Each bar is machined from a single block extruded black anodized aluminium to provide a common inlet and dual common exhaust. The Mid and High Profile versions offer a common external pilot and an add-on version option which provides a means to attach additional stations to the circuit bar®.

Electrical

Each circuit bar® is a non plug-in bar. All electrical connections are made at the solenoid. Wire and optional prewired cables are available.

Valving

Inline and manifold type valves can be mounted on the circuit bars®. The common inlet and exhausts can be isolated to provide different pressures. Valves using both style pilot valves (44 and 45 series) can be mounted on the same circuit bar®.

Porting

The common inlet and exhausts have a 3/8" tapped port. The Low Profile and Mid Profile bars are available with 1/8" and 1/4" bottom ports only. The High Profile bar is available with 1/8" and 1/4" side ports only.

Accessories

The Low Profile and Mid Profile bars are available with individual exhaust flow controls. Flow controls are not available on the High Profile version. An end plate kit is supplied with the add-on version type bar. A blank station valve cover plate is available for all circuit bars®.

	CBM401	CBM402	CBM403	CBM404	CBM405
Height	32	32	38	38	52
Cylinder ports in valve	Yes	No	Yes	No	No
Cylinder ports in base	No	Yes, bottom	No	Yes, bottom	Yes, side + bottom
Flow controls	Yes	Yes	Yes	Yes	Yes
Common Pilot	Internal	Internal	Internal / External	Internal	Internal / External
Cylinder Port Size	/	1/8	/	1/8 - 1/4	1/8 - 1/4

MAC 400 Series

MAC 400 Series - Circuit bar®

How to order low profile bar (32 mm)

CBM40 1 A - X X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR PROFILE (HEIGHT)	SPACING	CONFIGURATION	STYLE	PORT SIZE (COMMON PORTS)
1 Low Profile (32 mm)	00 19.5 mm (Standard) 02 26 mm (conduit & rect. DIN type connectors)	A Inline body B Inline body with F.C.	A Standard	A 3/8" NPTF B 3/8" BSPPL C 3/8" BSPTR

Replacement parts & accessories

M-04001	Blank station kit for 5-port inline body
N-04001	Flow control assembly (2 per station)
17013-01	O-Ring port seal (2 per station)
17015-01	O-Ring port seal (1 per station)
35043	Body to bar manifold mounting screw (2 per valve)

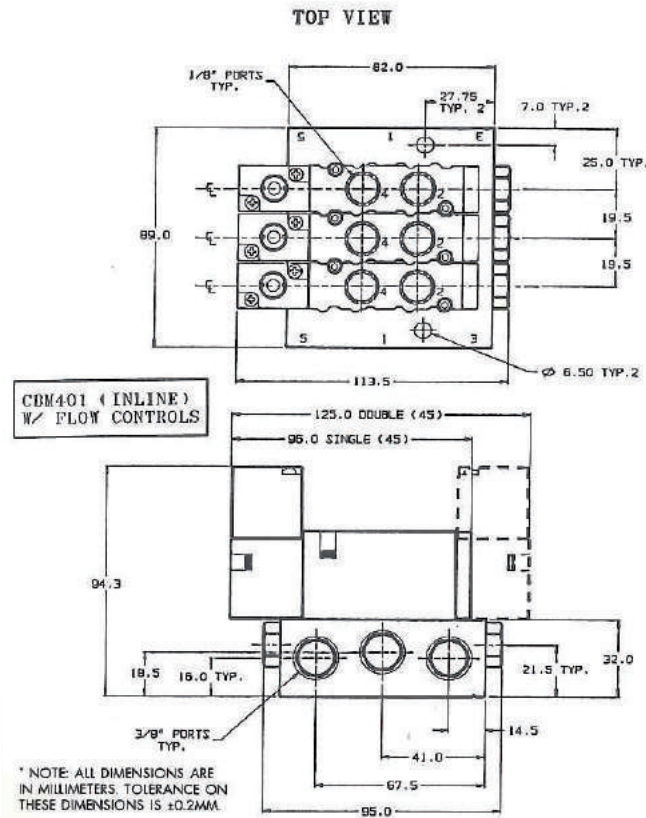
Ordering example

CBM401A-00BAA-06

Low profile bar, 19.5 mm spacing, for 5-port inline body, with flow controls, 3/8" NPTF common ports, six identical stations.

Dimensions

All dimensions are in mm



Drawing for a low profile bar, cylinder ports in valve

MAC 400 Series

MAC 400 Series - Circuit bar®

How to order low profile bar (32 mm) - For manifold body

CBM40 2 A - X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR PROFILE (HEIGHT)	SPACING	CONFIGURATION	STYLE	PORT SIZE (CYLINDER PORTS)
2 Low profile (32 mm) for manifold body	00 19.5 mm (standard) 02 26 mm (conduit & rect. DIN type connectors)	A Manifold body bottom cyl. ports B Manifold body - Bottom cyl. ports & flow controls	A Standard bar	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR

Replacement parts & accessories

M-04002	Blank station kit for manifold body
N-04001	Flow control assembly (2 per station)
16525	Body to base pressure seal, manifold body bar
35043	Body to bar mounting screw (2 per station)

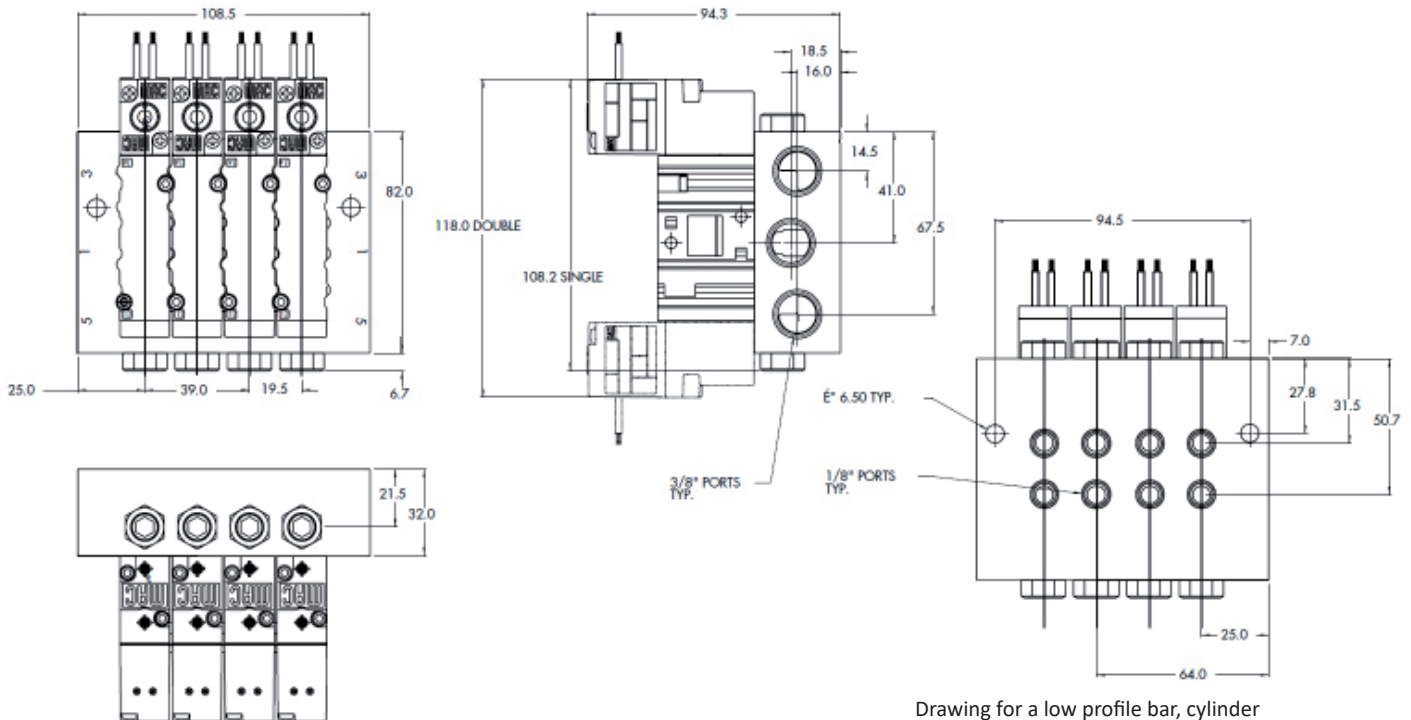
Ordering example

CBM402A-00AAB-06

Low profile bar, 19.5 mm spacing, for manifold bodies, bottom cylinders 1/8" BSPPL, six identical stations.

Dimensions

All dimensions are in mm



Drawing for a low profile bar, cylinder ports in base

MAC 400 Series

MAC 400 Series - Circuit bar®

How to order mid profile bar (38 mm)

CBM40 3 A - X X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR PROFILE (HEIGHT)	SPACING	CONFIGURATION	STYLE	PORT SIZE (COMMON PORTS)
3 Mid Profile (38 mm)	00 19.5 mm (Standard) 01 21 mm 02 26 mm (conduit & rect. DIN type connectors)	A Inline body B Inline body with F.C. C Inline body Common external pilot D Inline body with F.C. Common external pilot	A Standard bar B Add-on version C Add-on version Common external pilot E Add-on right hand stations (21 mm min.)	A 3/8" NPTF B 3/8" BSPPL C 3/8" BSPTR

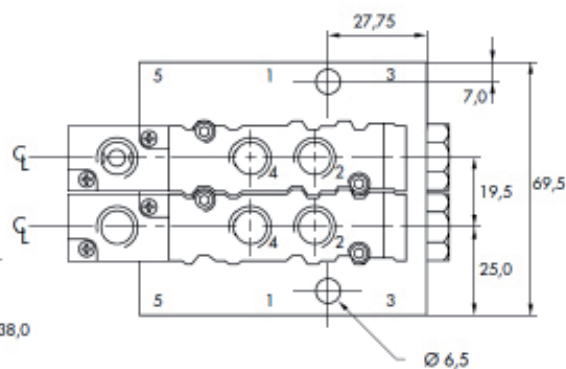
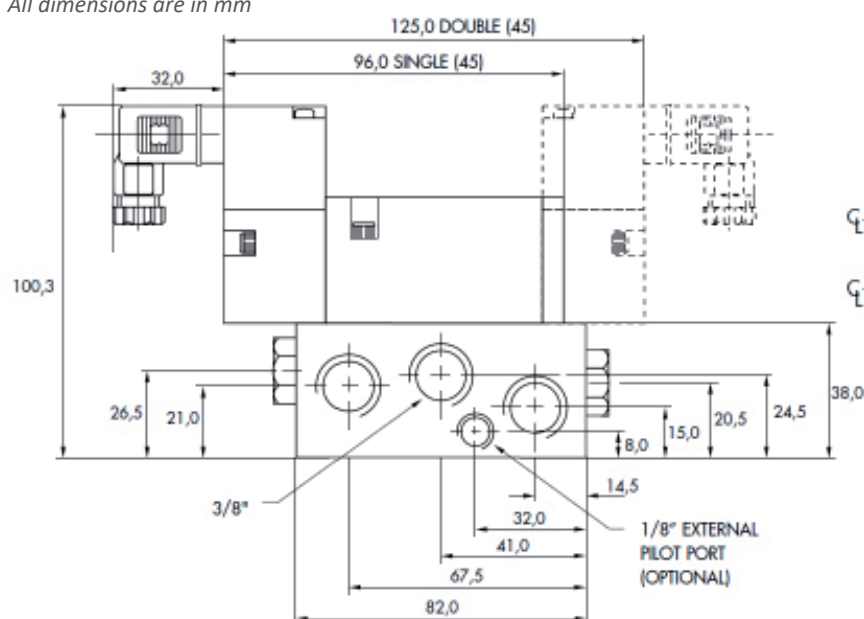
Right-hand end plate kit included w/ bar ass'y on "B" & "C" style add-on versions

Replacement parts & accessories

M-04003-01	Right-hand end plate kit, for mid profile bars (NPTF)
M-04003-01P	Right-hand end plate kit, for mid profile bars (BSPPL)
M-04004-01	Right-hand end plate kit, mid profile/ common ext. pilot (NPTF)
M-04004-01P	Right-hand end plate kit, mid profile/ common ext. pilot (BSPPL)
M-04001	Blank station kit for 5-port inline body
N-04001	Flow control assembly (2 per station)
17013-01	O-Ring body port seal (2 per station)
17015-01	O-Ring body port seal (1 per station)
35043	Body to body mounting screw (2 per station)

Dimensions

All dimensions are in mm



Drawing for a mid profile bar, cylinder ports in valve

Ordering examples

CBM403A-00CCA-06

Mid profile bar, 19.5 mm spacing, for 5-port inline body, common external pilot, 3/8" NPTF common ports add-on version, six identical stations.

CBM403A-01CEA-01

Mid profile bar, 21 mm spacing, for 5-port inline body, common external pilot, 3/8" NPTF common ports, single unit for add-on version, can be added to above example bar.

MAC 400 Series

MAC 400 Series - Circuit bar®

How to order mid profile bar (38 mm) - For manifold body

CBM40 4 A - X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR PROFILE (HEIGHT)	SPACING	CONFIGURATION	STYLE	PORT SIZE (CYLINDER PORTS)
4 Mid Profile (38 mm) For manifold body	00 19.5 mm (Standard) 01 21 mm 02 26 mm (conduit & rect. DIN type connectors)	A Manifold body Bottom cyl. ports B Manifold body - Bottom cyl. ports & flow controls	A Standard bar B Add-on version E Add-on right hand stations (21 mm min.)	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR D 1/4" NPTF E 1/4" BSPPL F 1/4" BSPTR

Right-hand end plate kit included w/ bar ass'y on "B"
style add-on version

Replacement parts & accessories

M-04003-01	Right-Hand end plate kit, for mid profile bar (NPTF)
M-04003-01P	Right-Hand end plate kit, for mid profile bar (BSPPL)
M-04002	Blank station kit for manifold body
N-04001	Flow control assembly (2 per station)
16525	Body to base pressure seal, manifold body
35043	Body to bar mounting screw (2 per station)

Ordering examples

CBM404A-00ABA-06

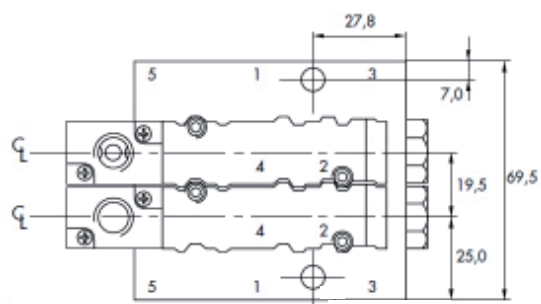
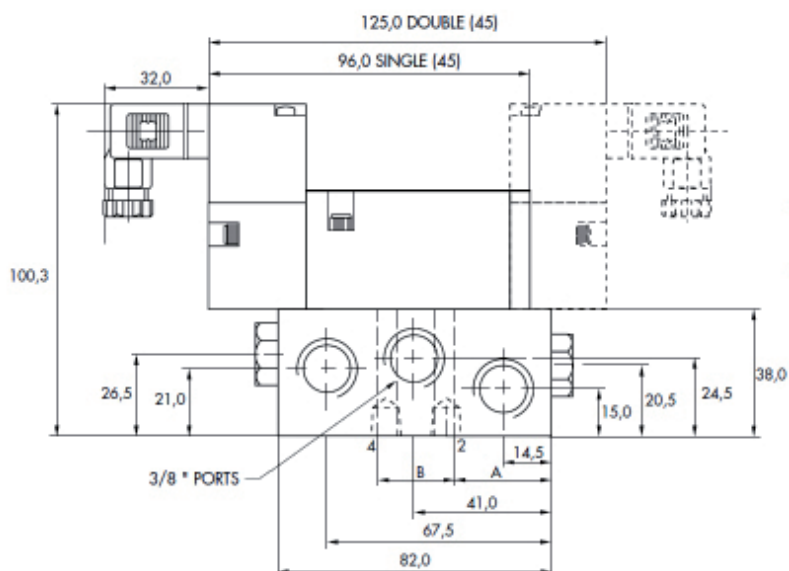
Mid profile bar, 19.5 mm spacing, for manifold bodies, bottom cylinders 1/8" NPTF, add-on version, six identical stations.

CBM404A-01AEA-01

Mid profile bar, 21 mm spacing, for manifold body, bottom cyl's 1/8" NPTF, single unit for add-on version, can be added to above example bar

Dimensions

All dimensions are in mm



Drawing for a mid profile bar, cylinder
ports in base

Port size	A	B
1/8"	31.5	19.0
1/4"	32.0	20.0

MAC 400 Series

MAC 400 Series - Circuit bar®

How to order high profile bar (52 mm)

CBM40 5 A - X X X X - X X - 9

Valves, cover plates
assembled to manifold

Number of Stations

BAR PROFILE (HEIGHT)	SPACING	CONFIGURATION	STYLE	PORT SIZE (CYLINDER PORTS)
5 High Profile (52 mm)	00 19.5 mm (Standard) 01 21 mm 02 26 mm (conduit & rect. DIN type connectors)	A Manifold body Side cyl. ports B Manifold body - Side cyl. ports & common external pilot	A Standard bar B Add-on version C Add-on version Common external pilot E Add-on right hand stations (21 mm min.)	A 1/8" NPTF B 1/8" BSPPL C 1/8" BSPTR D 1/4" NPTF E 1/4" BSPPL F 1/4" BSPTR

Right-hand end plate kit included w/ bar ass'y on "B" & "C" style add-on versions

Replacement parts & accessories

M-04005-01	Right-Hand end plate kit, for high profile bars (NPTF)
M-04005-01P	Right-Hand end plate kit, for high profile bars (BSPPL)
M-04006-01	Right-Hand end plate kit, high profile/common ext. pilot (NPTF)
M-04006-01P	Right-Hand end plate kit, high profile/common ext. pilot (BSPPL)
M-04002	Blank station kit for manifold body
16525	Body to base pressure seal, manifold body
35043	Body to bar mounting screw (2 per station)

Ordering examples

CBM405A-00ABD-06

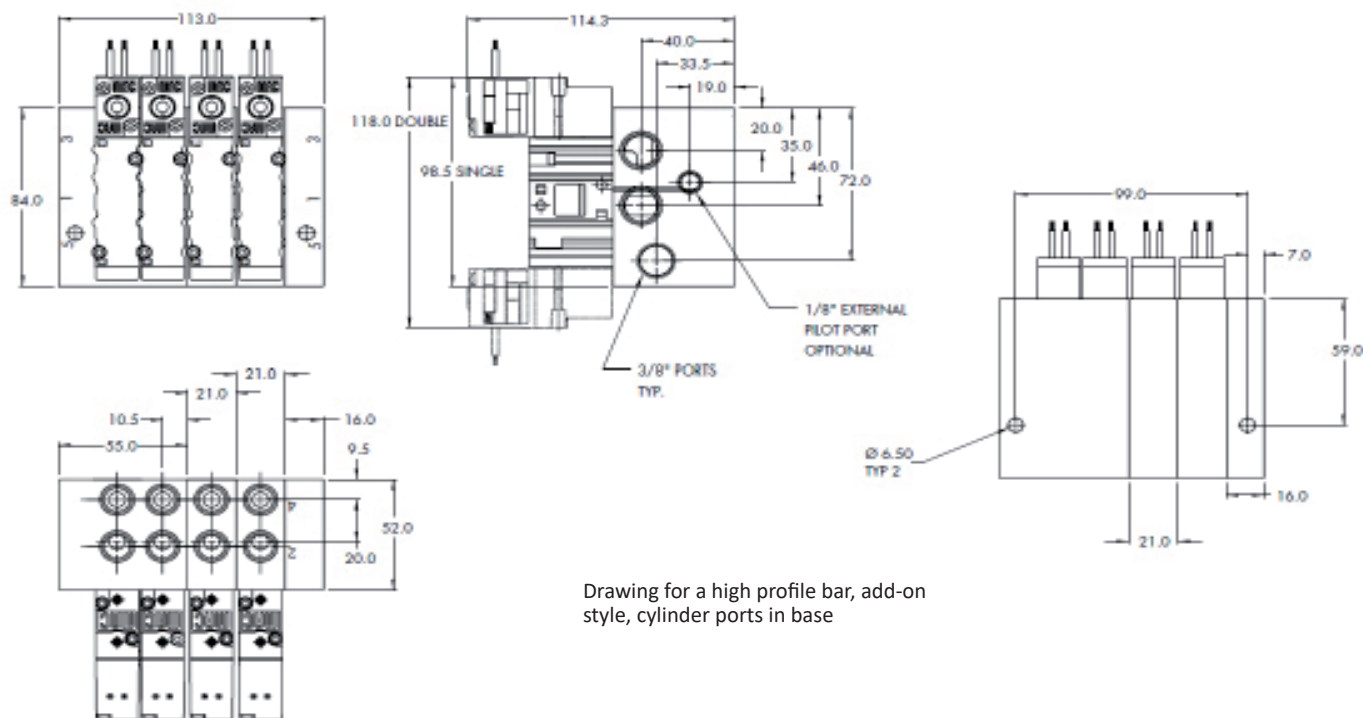
High profile bar, 19.5 mm spacing for manifold body, side cylinders 1/4" NPTF, add-on version, six identical stations.

CBM405A-01AED-01

High profile bar, 21 mm spacing, for manifold body, side cyl's 1/4" NPTF, single unit for add-on version, can be added to above example bar

Dimensions

All dimensions are in mm



Drawing for a high profile bar, add-on style, cylinder ports in base

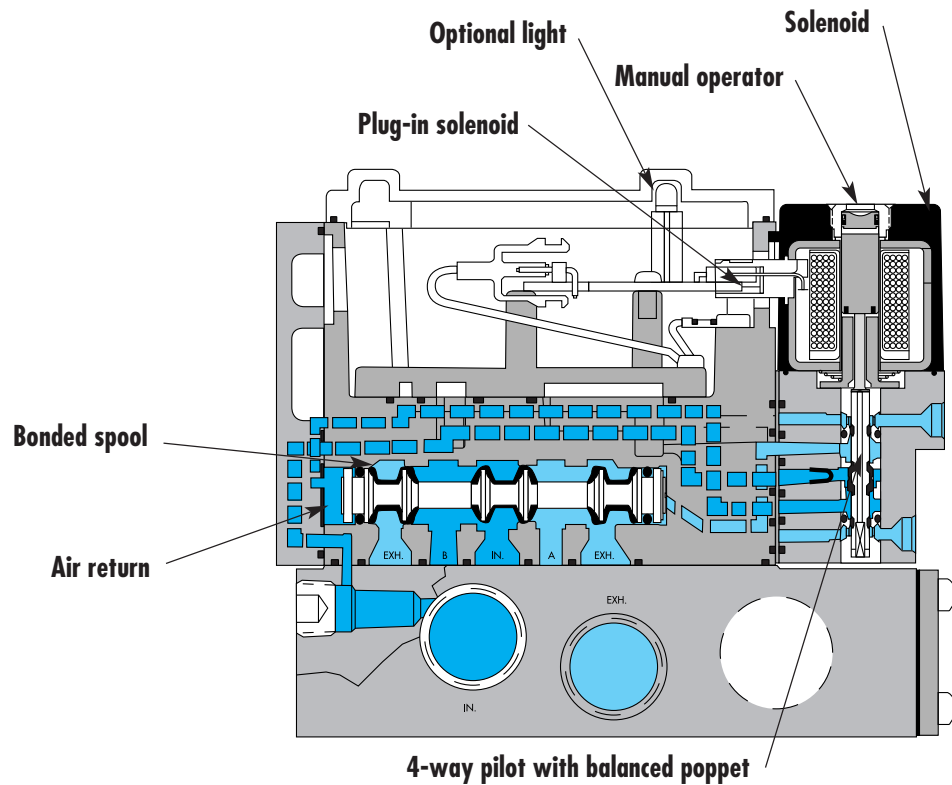
Direct solenoid and solenoid pilot operated valves

Individual mounting

Sub-base non "plug-in"	Sub-base "plug-in"	
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Manifold mounting

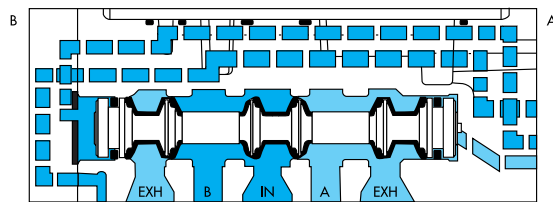
Manifold base non "plug-in"	Manifold base "plug-in"	
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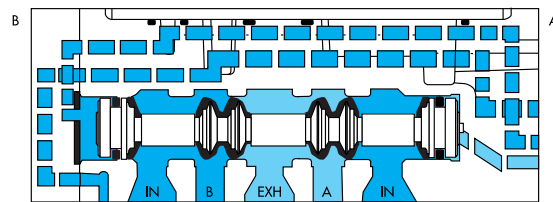
SERIES FEATURES

- 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.

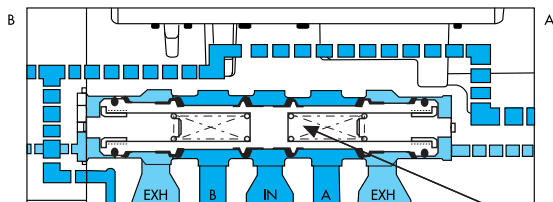
SPOOL CONFIGURATIONS



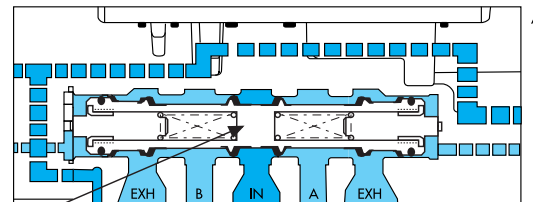
2 POSITION SINGLE PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED



2 POSITION DUAL PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED

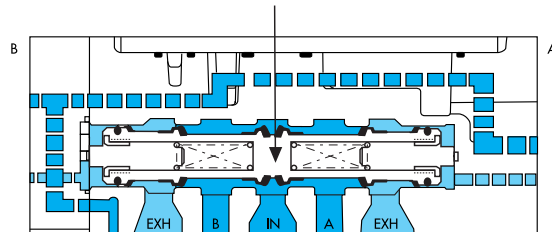


3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER

SPRING CENTERING

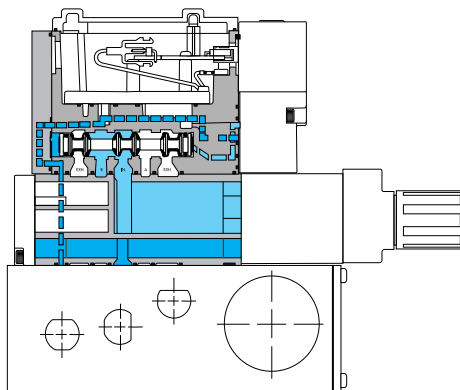


3 POSITION SINGLE PRESSURE, PRESSURE CENTER

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.

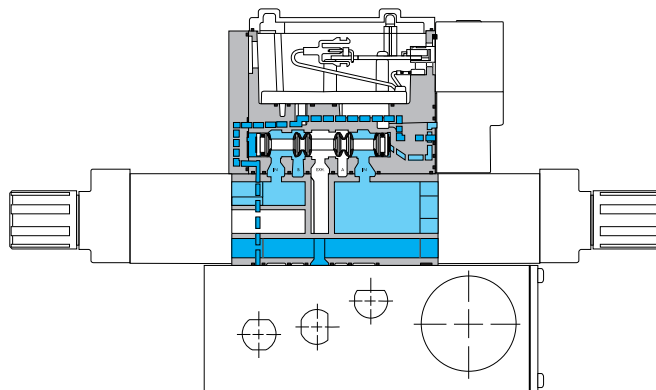


MANIFOLD WITH REGULATOR - SINGLE PRESSURE

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

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

Function	Port size	Flow [Max]	Individual mounting
5/2, 5/3	G1/8" - G1/4" - G3/8"	1200 Nl/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

Above models are shown with side ports.

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

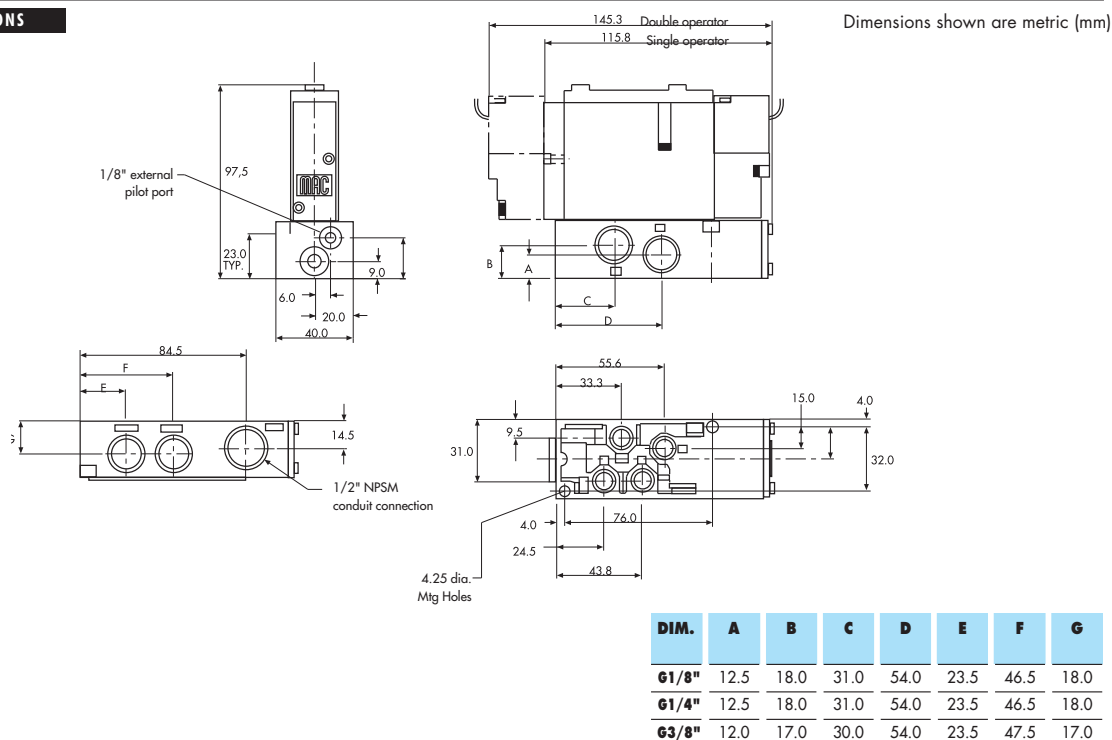
* Other options available, see page options.

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



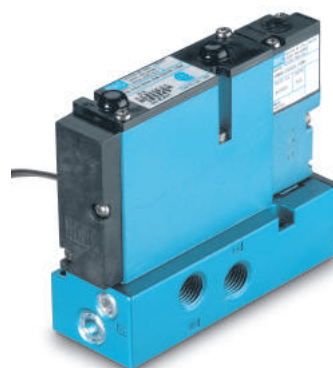
Function Port size Flow [Max] Individual mounting

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.



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

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

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 ground
DA 24 V~/5,4W		DJ Plug-in with M.O.V. & ground
DF 24 V~/12,7W		DH Plug-in with diode & ground

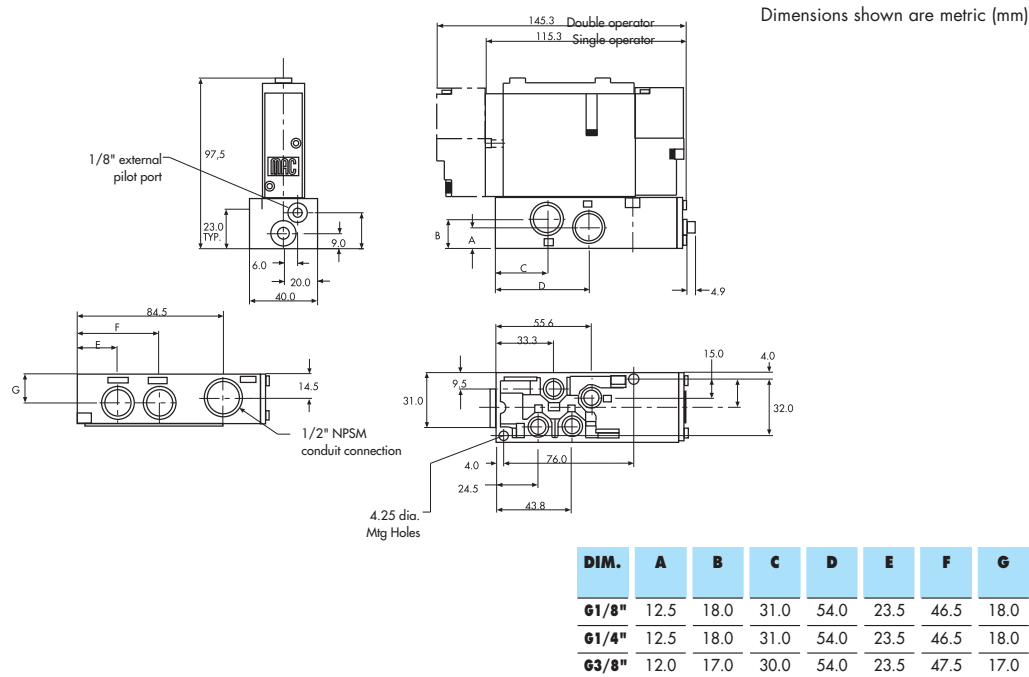
* Other options available, see page options.
Note: Ground required for 30 Volts or higher.

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



Function Port size Flow [Max] Manifold mounting

5/2, 5/3 **G1/4" - G3/8"** **1200 Nl/min**

Manifold 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

Above models are shown with side ports.

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

* Other options available, see page options.

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

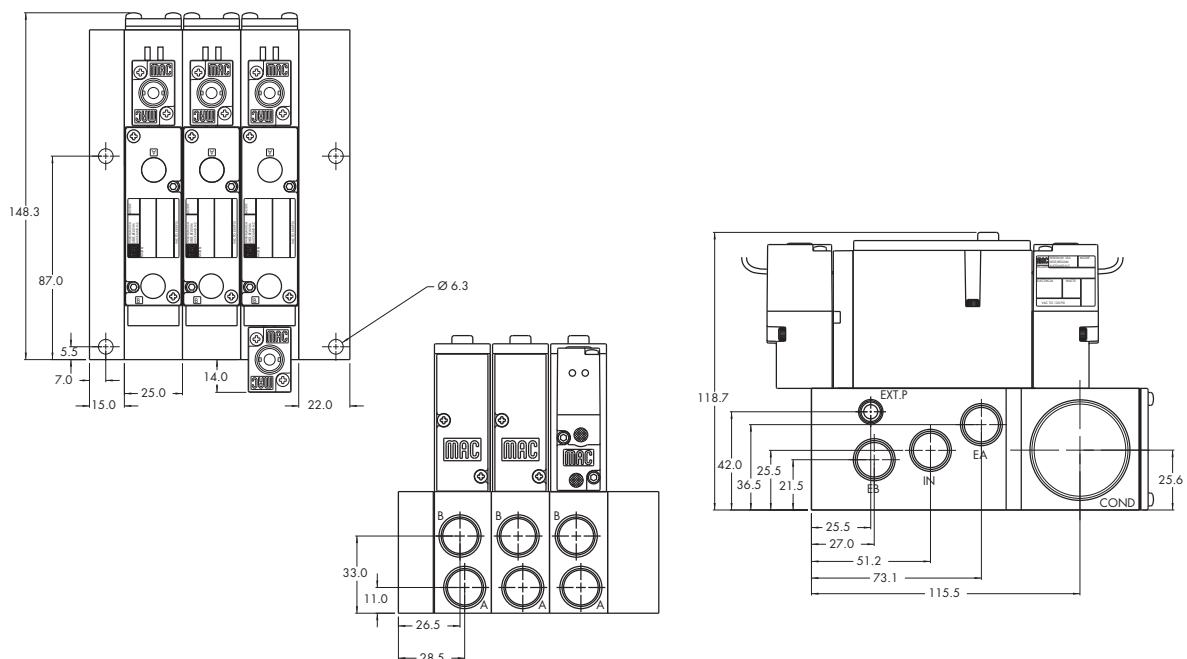
M-92004-02-01P (External pilot)

Inlet/exhaust Isolator disc: N-92018.

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

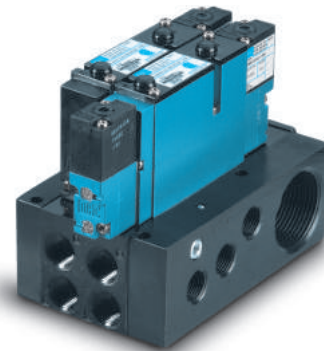
DIMENSIONS Dimensions shown are metric (mm)



Function	Port size	Flow [Max]	Manifold mounting
5/2, 5/3	G1/4" - G3/8"	1200 Nl/min	Manifold 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 ground
DA	24 V=/5,4W			DJ	Plug-in with M.O.V. & ground
DF	24 V=/12,7W			DH	Plug-in with diode & ground

* Other options available, see page options.

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.

TECHNICAL DATA

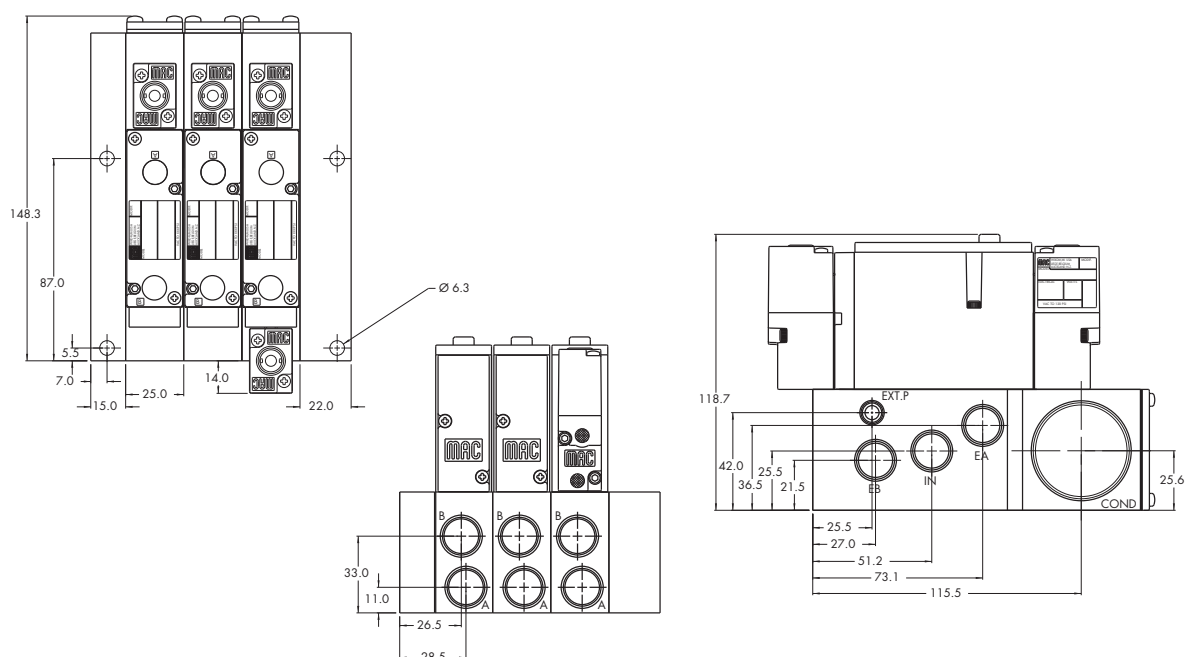
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1,3 to 8 bar 3 position : 2,3 to 8 bar External pilot : vacuum to 8 bar 3 position : 2,3 to 8 bar		
Pilot pressure:	1,3 to 8 bar 3 positions 2,3 to 8 bar		
Lubrication :	Not required, if used select a medium aniline point 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)





Direct solenoid and solenoid pilot operated valves

OPTIONS FOR NON PLUG-IN VALVES

Valve function

92B-**H**XX-XXX-XX-D**XXX-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-**X****B**X-XXX-XX-D**XXX-XXX**

- B** standard pilot exhaust
- D** pilot exhaust to main valve exhaust**

Port configuration :

Individual sub-base

92B-XXX-**X****A**X-XX-D**XXX-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-**X****J**X-XX-D**XXX-XXX**

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

Pilot style :

92B-XXX-XXX-**D****M**-D**XXX-XXX**

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

Base only :

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-**H**XX-XXX-XX-D**XX**P-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-X**A**X-XXX-XX-D**XX**P-XXX

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

Body electrical

92B-XX**A**-XXX-XX-D**XX**P-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-X**A**X-XX-D**XX**P-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-X**J**X-XX-D**XX**P-XXX

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

Base/manifold int./ext. pilot

92B-XXX-XX**A**-XX-D**XX**P-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**-D**XX**P-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-D**XX**P-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.

Sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR92C-EAAA	PR92C-EBAA	PR92C-ECAA	PR92C-EDAA	PR92C-EEAA
Gauge with face perpendicular to manual operator	PR92C-EABA	PR92C-EBBA	PR92C-ECBA	PR92C-EDBA	PR92C-EEBA
Gauge with face parallel to manual operator	PR92C-EACA	PR92C-EBCA	PR92C-ECCA	PR92C-EDCA	PR92C-EECA

Note: above models are coded for use with single solenoid valves

REGULATORS FOR "NON PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR92C-GAAA	PR92C-GBAA	PR92C-GCAA	PR92C-GDAA	PR92C-GEAA
Gauge with face perpendicular to manual operator	PR92C-GABA	PR92C-GBBA	PR92C-GCBA	PR92C-GDBA	PR92C-GEBA
Gauge with face parallel to manual operator	PR92C-GACA	PR92C-GBCA	PR92C-GCCA	PR92C-GDCA	PR92C-GECA

* For use with dual pressure valves.

PLUG-IN OPTIONS

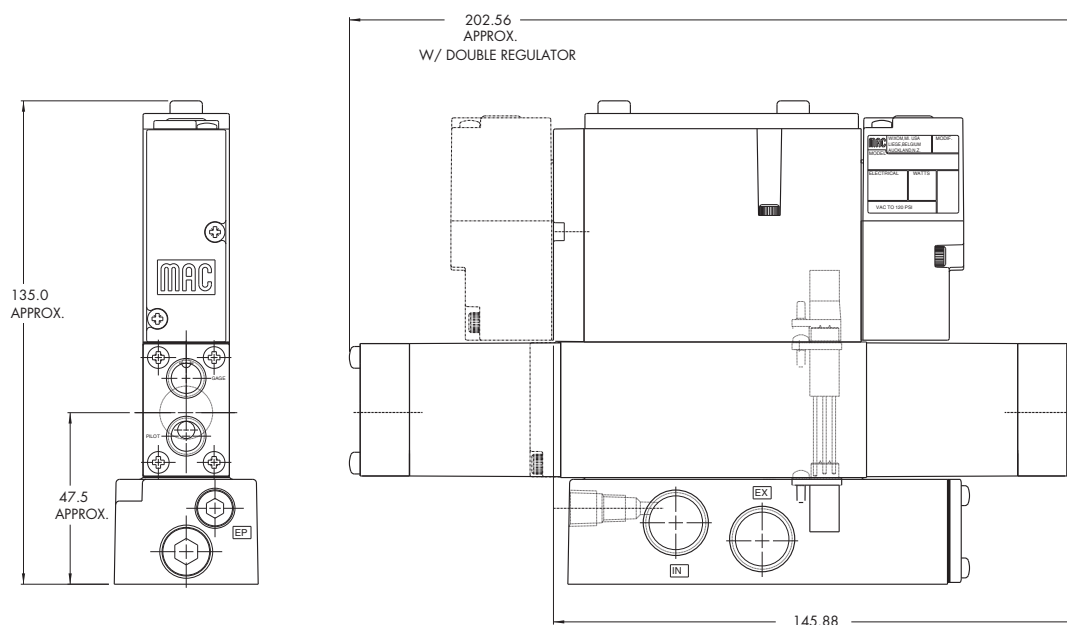
PR92C-Exxx

— F for double solenoid valve

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	800 NL/min (Cv 0.8)

- Spare parts :
- R-92003 : regulator end plate kit • Gauge kit 0 - 10,7 bar: N-92006-01
 - R-92003-01: regulator by-pass end plate kit
 - Pressure regulator (less sandwich block) : PR92C-H0AA

DIMENSIONS Dimensions shown are metric (mm)



Sandwich selector pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Select to A port Regulator A end By-pass plate B end	Select to B port Regulator B end By-pass plate A end	Select to A port Reg. both ends A end low press. B end high press.	Select to B port Reg. both ends A end high press. B end low press.
No Gauge	PR92C-JPAA	PR92C-JRAA	PR92C-JSAA	PR92C-JTAA
Gauge with face perpendicular to manual operator	PR92C-JPBA	PR92C-JRBA	PR92C-JSBA	PR92C-JTBA
Gauge with face parallel to manual operator	PR92C-JPCA	PR92C-JRCA	PR92C-JSCA	PR92C-JTCA

Note: above models are coded for use with single solenoid valves

REGULATORS FOR "NON PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Select to A port Regulator A end By-pass plate B end	Select to B port Regulator B end By-pass plate A end	Select to A port Reg. both ends A end low press. B end high press.	Select to B port Reg. both ends A end high press. B end low press.
No Gauge	PR92C-LPAA	PR92C-LRAA	PR92C-LSAA	PR92C-LTAA
Gauge with face perpendicular to manual operator	PR92C-LPBA	PR92C-LRBA	PR92C-LSBA	PR92C-LTBA
Gauge with face parallel to manual operator	PR92C-LPCA	PR92C-LRCA	PR92C-LSCA	PR92C-LTCA

Notes: - Regulating range for above models is 0 to 8 bar. For other ranges, see technical data page
- Use single pressure valve for all above models.

OPTIONS

Regulator less sandwich block

PR92C-**xOxx**

- M** Knob
- D** Slotted stem
- S** Slotted stem with locknut

Other adjustment

PR92C-**xxxx**

- A** Slotted stem, single solenoid
- B** Slotted stem, double solenoid
- C** Slotted stem, non plug-in
- K** Knob, double solenoid
- N** Slotted stem w/ locknut, single solenoid
- P** Slotted stem w/ locknut, double solenoid
- R** Slotted stem w/ locknut, non plug-in

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar):	800 NL/min (Cv 0.8)

Spare parts :

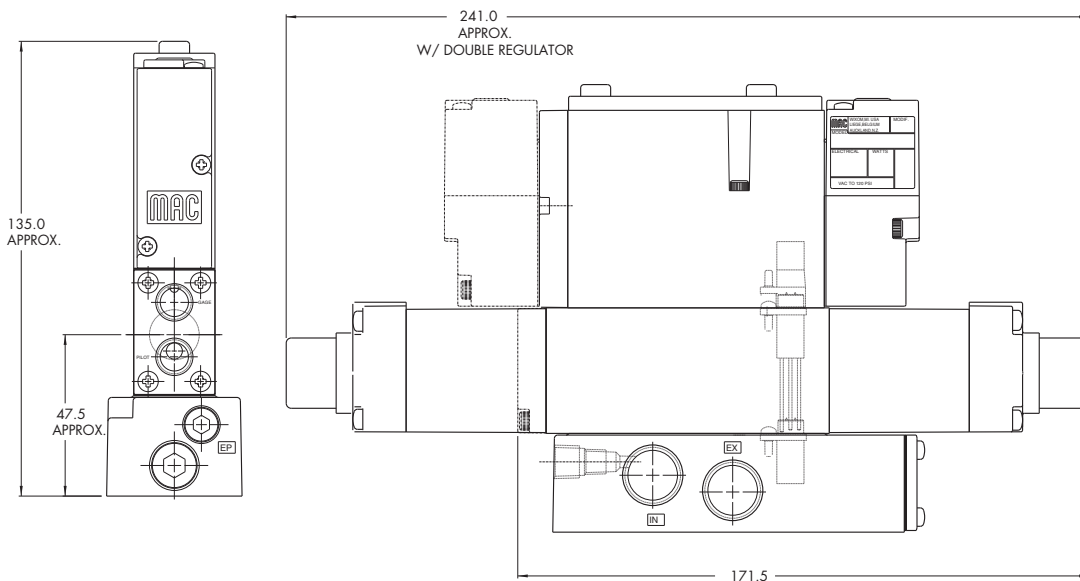
- R-92003 : end plate kit • R-92003-01 : by-pass end plate kit
- Gauge kit 0 – 10,7 bar: N-92006-01 • Gauge kit 0 – 6,7 bar: N-92006-02
- Gauge kit 0-4 bar: N-92006-03

Options:

- Pressure range: PR92C-xxxA (A 0 to 8 bar)

- B 0 to 5,3 bar
- C 0 to 2 bar
- D 0 to 8 bar "A" end, 0 to 5,3 bar "B" end
- E 0 to 8 bar "B" end, 0 to 5,3 bar "A" end
- F 0 to 8 bar "A" end, 0 to 2 bar "B" end
- G 0 to 8 bar "B" end, 0 to 2 bar "A" end
- H 0 to 5,3 bar "A" end, 0 to 2 bar "B" end
- J 0 to 5,3 bar "B" end, 0 to 2 bar "A" end

DIMENSIONS Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
No Gauge	PR92C-JAAA	PR92C-JBAA	PR92C-JCAA	PR92C-JDAA	PR92C-JEAA
Gauge with face perpendicular to manual operator	PR92C-JABA	PR92C-JBBA	PR92C-JCBA	PR92C-JDBA	PR92C-JEBA
Gauge with face parallel to manual operator	PR92C-JACA	PR92C-JBCA	PR92C-JCCA	PR92C-JDCA	PR92C-JECA

Note: above models are coded for use with single solenoid valves

REGULATORS FOR "NON PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR92C-LAAA	PR92C-LBAA	PR92C-LCAA	PR92C-LDAA	PR92C-LEAA
Gauge with face perpendicular to manual operator	PR92C-LABA	PR92C-LBBA	PR92C-LCBA	PR92C-LDBA	PR92C-LEBA
Gauge with face parallel to manual operator	PR92C-LACA	PR92C-LBCA	PR92C-LCCA	PR92C-LDCA	PR92C-LECA

* For use with dual pressure valves.

Note: Regulating range for above models is 0 to 8 bar. For other ranges, see technical data page.

OPTIONS

Regulator less sandwich block

PR92C-x0xx

- M** Knob
- D** Slotted stem
- S** Slotted stem with locknut

Other adjustment

PR92C-xxxx

- A** Slotted stem, single solenoid
- B** Slotted stem, double solenoid
- C** Slotted stem, non plug-in
- K** Knob, double solenoid
- N** Slotted stem w/ locknut, single solenoid
- P** Slotted stem w/ locknut, double solenoid
- R** Slotted stem w/ locknut, non plug-in

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar):	800 NL/min (Cv 0.8)

Spare parts :

- R-92003 : end plate kit • R-92003-01 : by-pass end plate kit
- Gauge kit 0 – 10,7 bar: N-92006-01 • Gauge kit 0 – 6,7 bar: N-92006-02
- Gauge kit 0-4 bar: N-92006-03

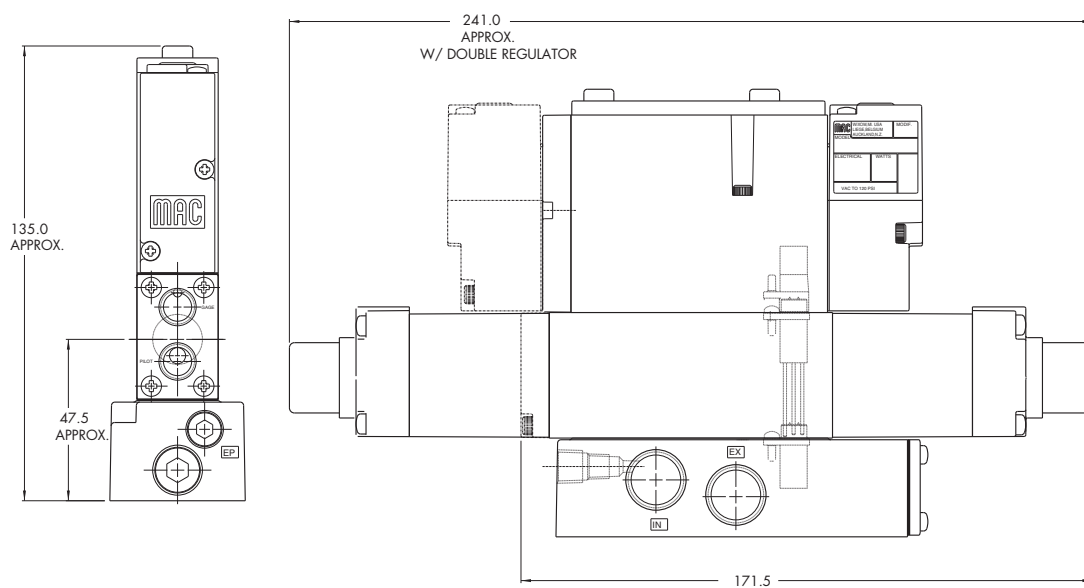
Options :

- Pressure range: PR92C-xxxA (A 0 to 8 bar)

- B 0 to 5,3 bar
- C 0 to 2 bar
- D 0 to 8 bar "A" end, 0 to 5,3 bar "B" end
- E 0 to 8 bar "B" end, 0 to 5,3 bar "A" end
- F 0 to 8 bar "A" end, 0 to 2 bar "B" end
- G 0 to 8 bar "B" end, 0 to 2 bar "A" end
- H 0 to 5,3 bar "A" end, 0 to 2 bar "B" end
- J 0 to 5,3 bar "B" end, 0 to 2 bar "A" end

DIMENSIONS

Dimensions shown are metric (mm)



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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

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

* From Lead wire length options choose A through F

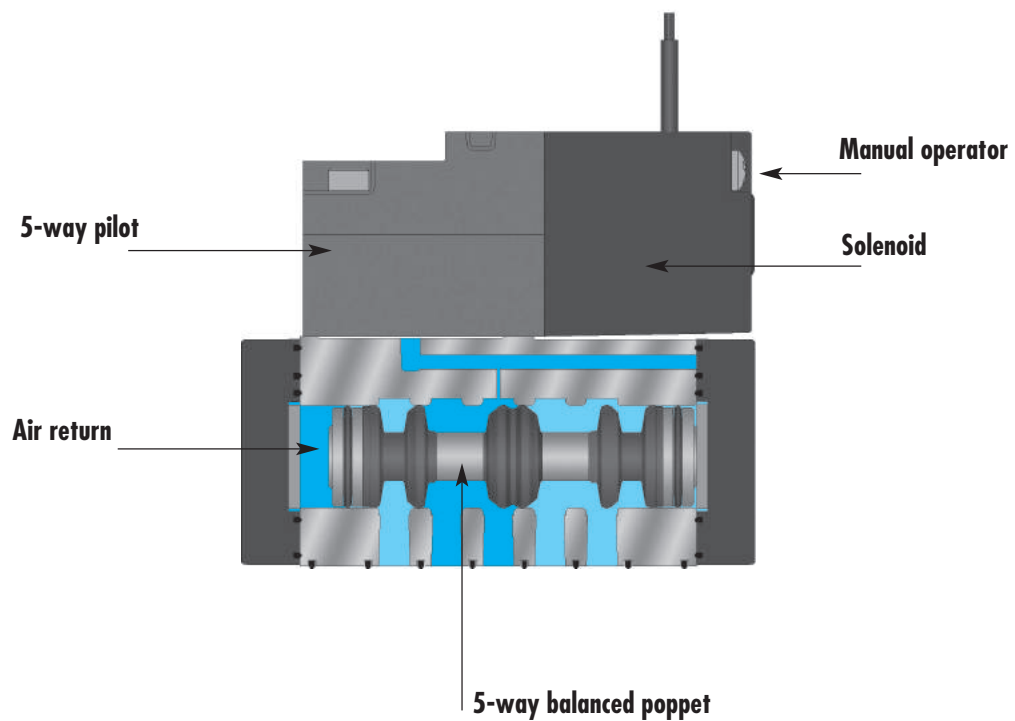
** From Lead wire length options choose 0 through F

Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads.

Direct solenoid and solenoid pilot operated valves

Individual Mounting

Inline Single operator	Inline Double operator
---------------------------	---------------------------



SERIES FEATURES

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

Function	Port size	Flow [Max]	Individual mounting
5/2	G1/4" - G3/8"	1500 NI/min	Individual base Non plug-in Single operator

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. 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 pressure	Dual pressure
G1/4"	Internal	83A-AAC-XX-XXXX-XXX	* 83A-CBC-XX-XXXX-XXX
	External 14 End	83A-ADC-XX-XXXX-XXX	83A-CDC-XX-XXXX-XXX
	External 12 End	83A-AEC-XX-XXXX-XXX	83A-CEC-XX-XXXX-XXX
G3/8"	Internal	83A-AAD-XX-XXXX-XXX	* 83A-CBD-XX-XXXX-XXX
	External 14 End	83A-ADD-XX-XXXX-XXX	83A-CDD-XX-XXXX-XXX
	External 12 End	83A-AED-XX-XXXX-XXX	83A-CED-XX-XXXX-XXX

* Pilot supply from port #5

SOLENOID OPERATOR ➤

DM-D XXX-XXX**

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
JA 110V~/50Hz (2.9W)	A 45 cm	1 Recessed non locking	BA Flying leads
FB 24 V~/1.8W	B 60 cm	2 Recessed locking	KA Square connector
DA 24 V~/5.4W	J* 15 cm		KD Square connector with light
			JB Rectangular connector
			JD Rectangular connector with light

* For use with "J" & "K" type connectors

** Other options available, see page options.

GM-G XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DC 24V~/1.8W	A 45 cm	1 Recessed non locking	BA Flying leads
DD 24V~/2.5W	B 60 cm	2 Recessed locking	KA Solenoid plug-in wire Assy
DF 24V~/4.0W	C 90 cm		GA MAC JAC solenoid plug-in wire assembly

* Other options available, see page options.

RM-R XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DC 24V~/1.8W	A 45 cm	1 Recessed non locking	BA Flying leads
DD 24V~/2.5W	B 60 cm	3 Extended non locking	RA Mini JAC solenoid plug-in
DF 24V~/4.0W	C 90 cm		RB Mini JAC solenoid plug-in with LED
DJ 12V~/1.8W			TA JST solenoid plug-in

* Other options available, see page options.

OPTIONS

Spool type : **83-XX-XX-XXXX-XXX**

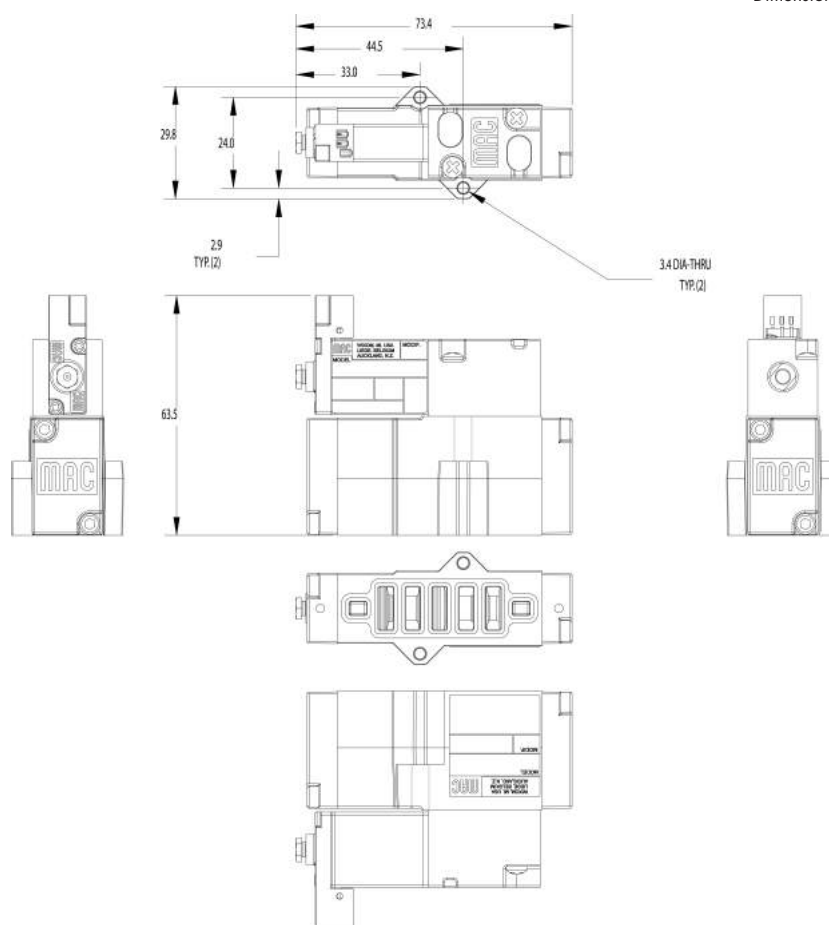
- M** Single operator – single pressure with memory spring
- N** Single operator – dual pressure with memory spring

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal Pilot: 1,3 to 8 bar External Pilot: Vacuum to 8 bar
Pilot signal:	1,3 to 8 bar 2,3 to 8 bar for memory spring
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	1500 NI/min (Cv 1.5)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% à +10%
Power :	5.4 W - 4.0 W - 2.5 W - 1.8 W
Option :	• NPTF thread

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Function Port size Flow [Max] Individual mounting

5/2, 5/3 **G1/4" - G3/8"** **1500 NI/min**




Individual base
Non plug-in
Double operator

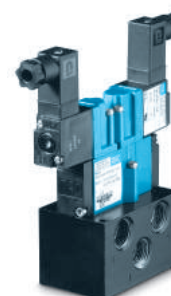
OPERATIONAL BENEFITS

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. 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 Double operator	5/3 Closed center	5/3 open center
				
G1/4"	Internal	83A-BAC-xx-xxxx-xxx	83A-EAC-xx-xxxx-xxx	83A-FAC-xx-xxxx-xxx
	External 14 End	83A-BDC-xx-xxxx-xxx	83A-EDC-xx-xxxx-xxx	83A-FDC-xx-xxxx-xxx
	External 12 End	83A-BEC-xx-xxxx-xxx	83A-EEC-xx-xxxx-xxx	83A-FEC-xx-xxxx-xxx
G3/8"	Internal	83A-BAD-xx-xxxx-xxx	83A-EAD-xx-xxxx-xxx	83A-FAD-xx-xxxx-xxx
	External 14 End	83A-BDD-xx-xxxx-xxx	83A-EDD-xx-xxxx-xxx	83A-FDD-xx-xxxx-xxx
	External 12 End	83A-BED-xx-xxxx-xxx	83A-EED-xx-xxxx-xxx	83A-FED-xx-xxxx-xxx



SINGLE PRESSURE MODELS

Port size	Pilot air	5/2 Double operator	5/3 Closed center
			
G1/4"	Internal from Port 5	83A-DBC-xx-xxxx-xxx	83A-GBC-xx-xxxx-xxx
	External 14 End	83A-DDC-xx-xxxx-xxx	83A-GDC-xx-xxxx-xxx
	External 12 End	83A-DEC-xx-xxxx-xxx	83A-GEC-xx-xxxx-xxx
G3/8"	Internal from Port 5	83A-DBD-xx-xxxx-xxx	83A-GBD-xx-xxxx-xxx
	External 14 End	83A-DDD-xx-xxxx-xxx	83A-GDD-xx-xxxx-xxx
	External 12 End	83A-DED-xx-xxxx-xxx	83A-GED-xx-xxxx-xxx

SOLENOID OPERATOR >

TM-D XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
AA 110V~/50Hz	A 45 cm	1 Recessed non locking	BA Flying leads
FB 24 V~/1.8W	B 60 cm	2 Recessed locking	KA Square connector
DA 24 V~/5.4W	J* 15 cm		KD Square connector with light
			JB Rectangular connector
			JD Rectangular connector with light

** Other options available, see page options.

* For use with "J" & "K" type connectors

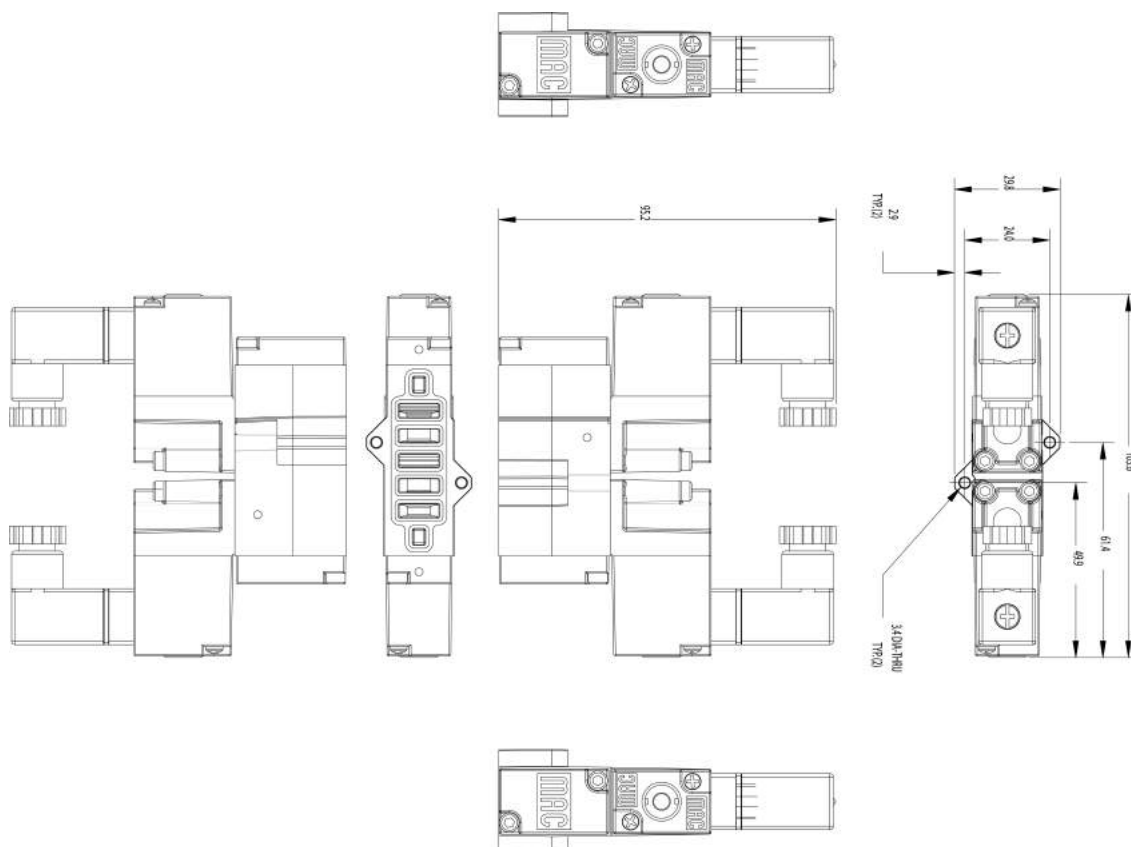
RM-R XXX-XXX*

XX Voltage	X Wire length	X Manual operator	XX Electrical connection
DB 24V~/1.0W	A 45 cm	0 No operator	BA Flying leads
DC 24V~/1.8W	B 60 cm	1 Recessed non locking	RA Mini JAC solenoid plug-in
DH 12V~/1.0W	C 90 cm	3 Extended non locking	RB Mini JAC solenoid plug-in with LED
DJ 12V~/1.8W			TA JST solenoid plug-in
			TB JST solenoid plug-in with LED

* Other options available, see page options.

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot : 1,3 to 8 bar (2 pos.) - 2 to 8 bar (3 pos.) External pilot : Vacuum to 8 bar
Pilot signal:	1,3 to 8 bar 2 to 8 bar (3 positions)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow :	2-position: 1500 NL/min (Cv 1.5) - 3-position: 1100 NL/min (Cv 1.1)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% à +10%
Power :	5.4 W - 1.8 W
Option :	• NPTF thread

DIMENSIONS Dimensions shown are metric (mm)





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

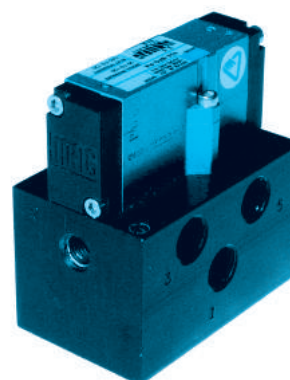
Function Port size Flow [Max] Individual mounting

5/2 - 5/3 G1/4" - G3/8" 3100 NI/min

Inline



OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure, also provides high flow.
2. Bonded spool with minimum friction, shifting in a glass-like finished bore.
3. Wiping effect eliminates sticking.
4. Long service life.
5. Short stroke with high flow.








HOW TO ORDER

SINGLE OPERATOR

Port size	Port size	5/2 Single operator	5/2 Dual pressure
			
G 1/4"	Internal	83A-AAC-DM-RA14	83A-CBC-DM-RA14
	External 14 end	83A-ADC-DM-RA14	83A-CDC-DM-RA14
	External 12 end	83A-AEC-DM-RA14	83A-CEC-DM-RA14
G 3/8"	Internal	83A-AAD-DM-RA14	83A-CBD-DM-RA14
	External 14 end	83A-ADD-DM-RA14	83A-CDD-DM-RA14
	External 12 end	83A-AED-DM-RA14	83A-CED-DM-RA14

DOUBLE OPERATOR

Port size	5/2 Single pressure	5/2 Dual pressure	5/3 Closed centre	5/3 Open centre	5/3 Dual pressure Pressure centre
					
G 1/4"	83A-BFC-RA	83A-DFC-RA	83A-EFC-RA	83A-FFC-RA	83A-GFC-RA
G 3/8"	83A-BFD-RA	83A-DFD-RA	83A-EFD-RA	83A-FFD-RA	83A-GFD-RA

Note: Above models are for side cylinder ports

OPTIONS

Single operator

83A-**x**xx-DM-RA14

Replace by **M** for single pressure with memory spring
Replace by **N** for dual pressure with memory spring

Double operator

83A-**xx****x**-RA

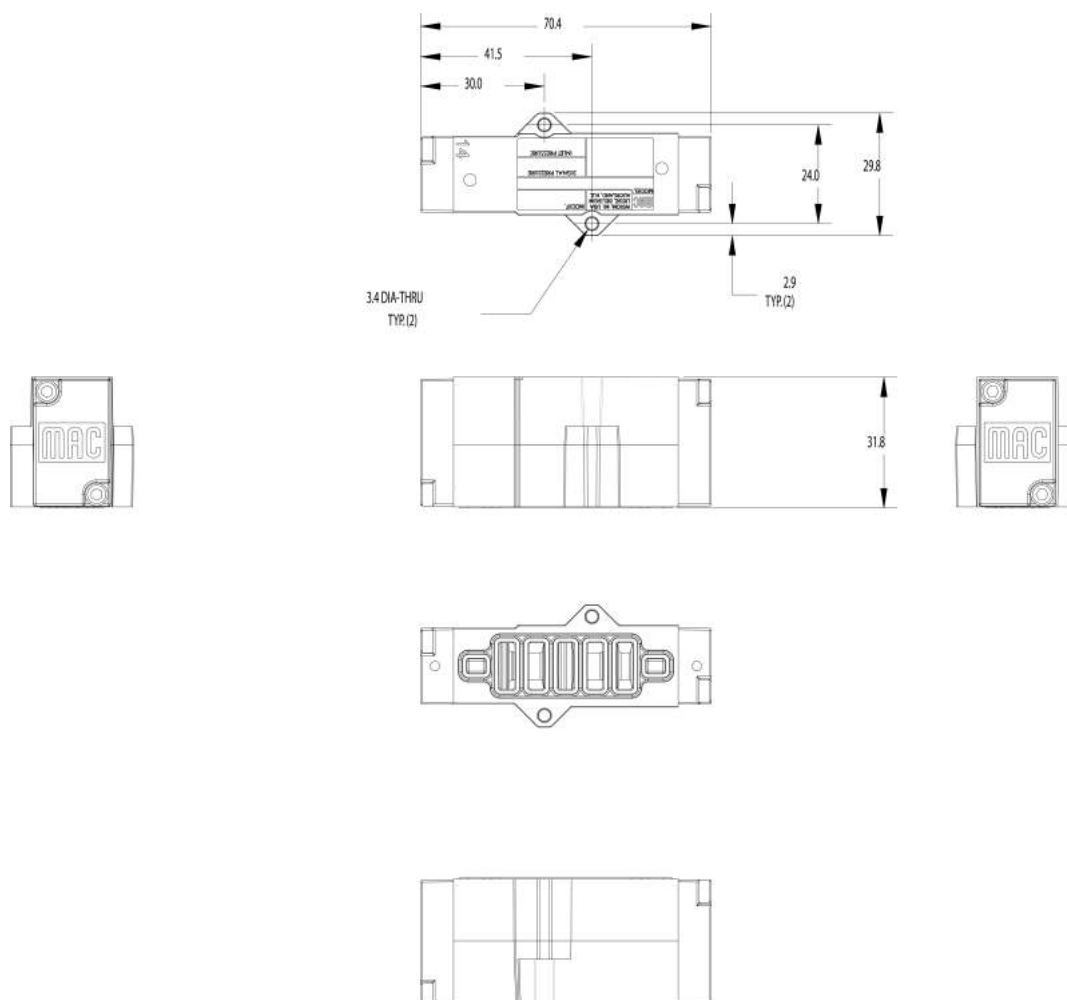
Replace by **H** for bottom cylinder ports (1/4" BSPP)

83A-**xx****x**-DM-RA14

Replace by **H** for bottom cylinder ports (1/4" BSPP)

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Sgl. operator : vacuum to 8 bar (external pilot) 1,3 to 8 bar (internal pilot) 2,3 to 8 bar (internal pilot with memory spring) Dbl. operator : 1,3 to 8 bar
Air signal pressure :	Sgl. operator: 2,3 to 4 bar – Dbl. operator: 1,3 to 8 bar (must be \geq main valve pressure)
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 :	8,5 mm
Flow :	1500 NI/min (2 pos.) – 1100 NI/min (3 pos.)
Option :	• NPTF threads

DIMENSIONS Dimensions shown are metric (mm)



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		

Codification table for voltages / Manual operators / Electrical connections

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

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
0	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		SOLENOID PLUG-IN CONNECTOR WITH LEADS	
G-XX X-X XX	MANUAL OPERATOR	G-XX X-X XX	SOLENOID PLUG-IN CONNECTOR WITH LEADS
1	Non-locking recessed	GA	MAC JAC Solenoid plug-in
2	Locking recessed	GB	MAC JAC Solenoid plug-in with diode
3	Non-locking extended	GC	MAC JAC Solenoid plug-in with MOV
4	Locking extended	GD	MAC JAC Solenoid plug-in with LED
		GE	MAC JAC Solenoid plug-in with diode and LED
		GF	MAC JAC Solenoid plug-in with MOV and LED
		GG	MAC JAC Solenoid plug-in with rectifier
		GH	MAC JAC Solenoid plug-in with rectifier and LED
		KA	Plug-in wire assembly
		KB	KA with ground wire
		KE	KA with suppression diode
		KF	KA with suppression diode & ground wire
		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

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **RM-R XX X - X XX**
 1 2 3 4

1. VOLTAGE		3. MANUAL OPERATOR	
R XX X - XXX	VOLTAGE	R XX X - XXX	MANUAL OPERATOR
DB	24 VDC (1.0W)	0	No operator
DC	24 VDC (1.8W)	1	Non-locking recessed
DD	24 VDC (2.5W)	3	Non-locking extended
DE	24 VDC (3.0W)		
DF	24 VDC (4.0W)		
DH	12 VDC (1.0W)		
DJ	12 VDC (1.8W)		
DK	12 VDC (2.5W)		
DL	12 VDC (3.0W)		
DM	12 VDC (4.0W)		
2. WIRE LENGHT		4. ELECTRICAL CONNECTION	
R XX X - XXX	WIRE LENGHT	R XX X - XXX	ELECTRICAL CONNECTION
0	No lead wire	BA	Flying leads
A	45 cm - 18"	BB	Flying leads with LED
B	60 cm - 24"	BC	Flying leads with MOV
C	90 cm - 36"	BD	Flying leads with LED and MOV
D	120 cm - 48"	RA	Mini JAC solenoid plug-in
E	180 cm - 72"	RB	Mini JAC solenoid plug-in with LED
F	240 cm - 96"	RC	Mini JAC solenoid plug-in with MOV
G	300 cm - 120"	RD	Mini JAC solenoid plug-in with LED and MOV
H	365 cm - 144"	TA	JST solenoid plug-in
		TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **TM-D XX X - X XX**
(Double Operator) **1 2 3 4**

1. VOLTAGE		3. MANUAL OPERATOR	
D XX X - XXX	VOLTAGE	D XX X - XXX	MANUAL OPERATOR
AA	120 V~/60 Hz, 110V~/50Hz	0	No operator
AB	240 V~/60 Hz, 220V~/50Hz	1	Non-locking recessed
AC	24 V~/60 Hz, 24V~/50Hz	2	Locking recessed
AD	24 V~/60 Hz	3	Non-locking extended
AE	200 V~/60 Hz	4	Locking extended
AF	240 V~/50 Hz		
AG	100 V~/50 Hz, 100V~/60Hz, 110 V~/ 60 Hz	4. ELECTRICAL CONNECTION	
DA	24V=/5.4W	D XX X - XXX	ELECTRICAL CONNECTION
DB	12V=/5.4W	BA	Flying leads
DC	12V=/7.5W	BK	BA with protection diode
DD	24V=/7.3W	BL	BA with protection variator (MOV)
DE	12V=/12.7W CLSF only	JB	Rectangular connector
DF	24V=/12.7W CLSF only	JD	Rectangular connector with light
DK	110V=/4.7W	JM	Rectangular connector, male only
DL	64V=/6W	KA	Square connector
DM	36V=/5.3W	KB	Square connector with protection diode
DN	6V=/6W	KC	Square connector with protection variator (MOV)
DP	18V=/5.8W	KD	Square connector with light
DU	24V=/6W	KE	Square connector with light and protection diode
EA	12V=/6W	KF	Square connector with light and protection variator (MOV)
FA	12V=/1.8W	KG	Square connector with light and diode
FB	24V=/1.8W	KJ	Square connector, male only
FE	12V=/2.4W	KK	Square connector with protection diode (male only)
FF	24V=/2.4W	KL	Square connector with protection variator (male only) (MOV)
2. WIRE LENGHT		TA	Dual tabs
D XX X - XXX	WIRE LENGHT	TB	TA with protection diode
A	45 cm - 18"	TD	TA with light
B	60 cm - 24"	TE	TA with light and protection diode
C	90 cm - 36"	TJ	Dual tabs (male only)
D	120 cm - 48"	TK	TJ with protection diode
E	180 cm - 72"	TM	TJ with light
F	240 cm - 96"	TN	TJ with light and protection diode
J	For external plug-in connectors ("J", "K", and "T" type electrical connection)		

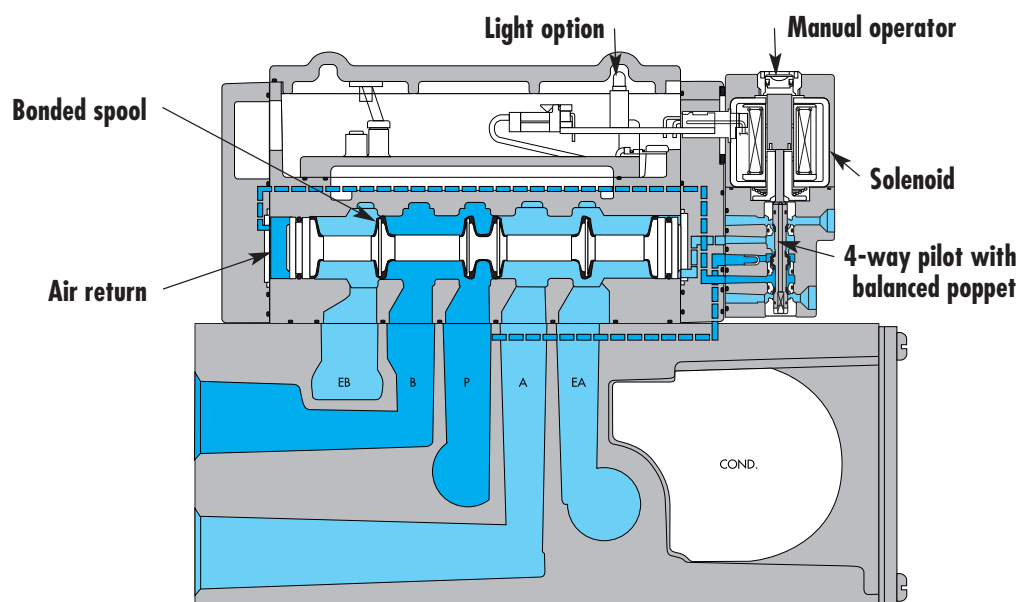
Direct solenoid and solenoid pilot operated valves

Individual mounting

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

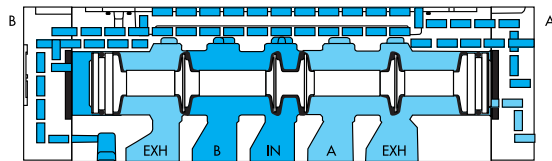
Manifold base non "plug-in"	Manifold base "plug-in"
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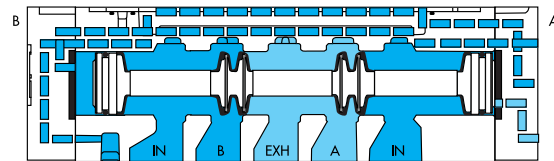
SERIES FEATURES

- 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.

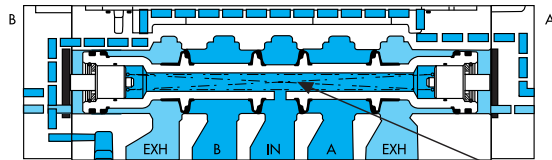
SPOOL CONFIGURATIONS



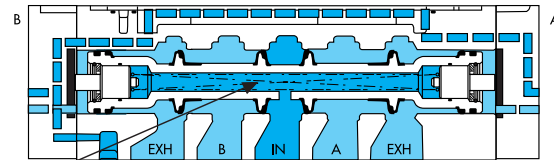
2 POSITION SINGLE PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED



2 POSITION DUAL PRESSURE
SHOWN WITH "B" OPERATOR ENERGIZED

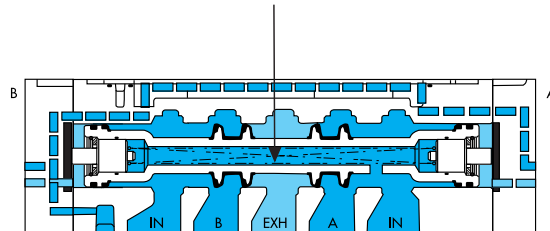


3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER

SPRING CENTERING

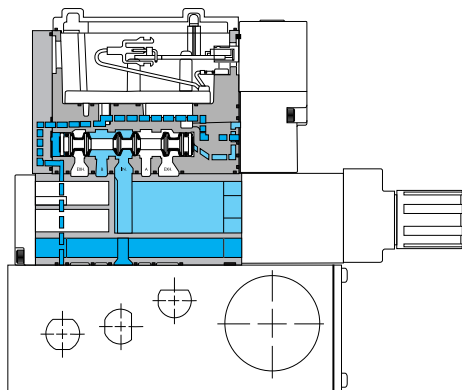


3 POSITION DUAL PRESSURE, PRESSURE CENTER

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.

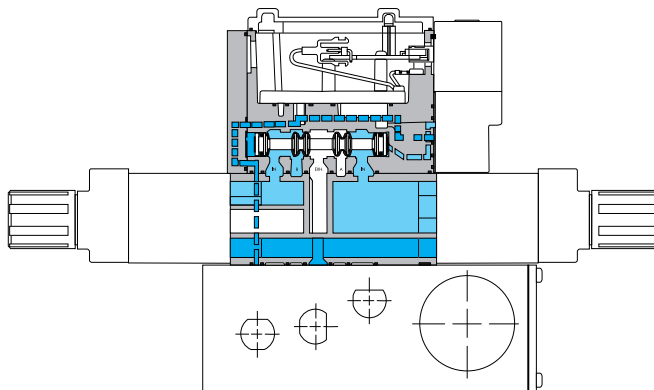


MANIFOLD WITH REGULATOR - SINGLE PRESSURE

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

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

Function	Port size	Flow [Max]	Individual mounting
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-AJ0-E0J-DM-DXXX-XXX	93A-BJ0-E0J-DM-DXXX-XXX	93A-EJ0-E0J-DM-DXXX-XXX	93A-FJ0-E0J-DM-DXXX-XXX
G1/2"	Internal	93A-AJ0-F0J-DM-DXXX-XXX	93A-BJ0-F0J-DM-DXXX-XXX	93A-EJ0-F0J-DM-DXXX-XXX	93A-FJ0-F0J-DM-DXXX-XXX
G3/8"	External	93A-AJ0-E0K-DM-DXXX-XXX	93A-BJ0-E0K-DM-DXXX-XXX	93A-EJ0-E0K-DM-DXXX-XXX	93A-FJ0-E0K-DM-DXXX-XXX
G1/2"	External	93A-AJ0-F0K-DM-DXXX-XXX	93A-BJ0-F0K-DM-DXXX-XXX	93A-EJ0-F0K-DM-DXXX-XXX	93A-FJ0-F0K-DM-DXXX-XXX

DUAL PRESSURE MODELS

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
G3/8"	Internal	93A-CJ0-E0J-DM-DXXX-XXX	93A-DJ0-E0J-DM-DXXX-XXX	93A-HJ0-E0J-DM-DXXX-XXX
G1/2"	Internal	93A-CJ0-F0J-DM-DXXX-XXX	93A-DJ0-F0J-DM-DXXX-XXX	93A-HJ0-F0J-DM-DXXX-XXX
G3/8"	External	93A-CJ0-E0K-DM-DXXX-XXX	93A-DJ0-E0K-DM-DXXX-XXX	93A-HJ0-E0K-DM-DXXX-XXX
G1/2"	External	93A-CJ0-F0K-DM-DXXX-XXX	93A-DJ0-F0K-DM-DXXX-XXX	93A-HJ0-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						

* Other options available, see page options.

OPTIONS

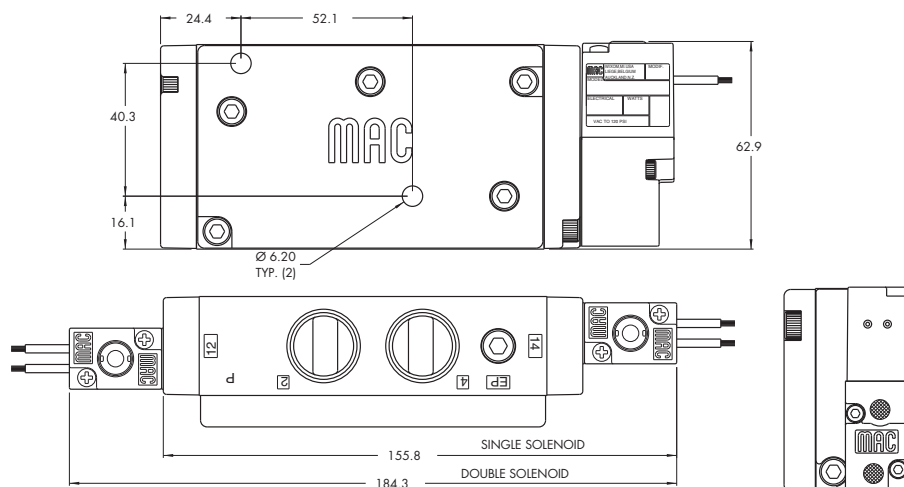
Pilot exhaust : 93A-XJX-XXX-DM-DXXX-XXX

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

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 :	11,7 mm
Flow (at 6 bar, $\Delta P=1\text{bar}$) :	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)



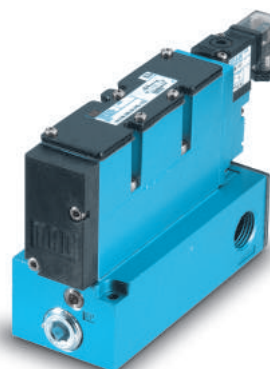
Function Port size Flow [Max] Individual mounting

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	93A-FBA-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	5/3 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	93A-HBA-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***

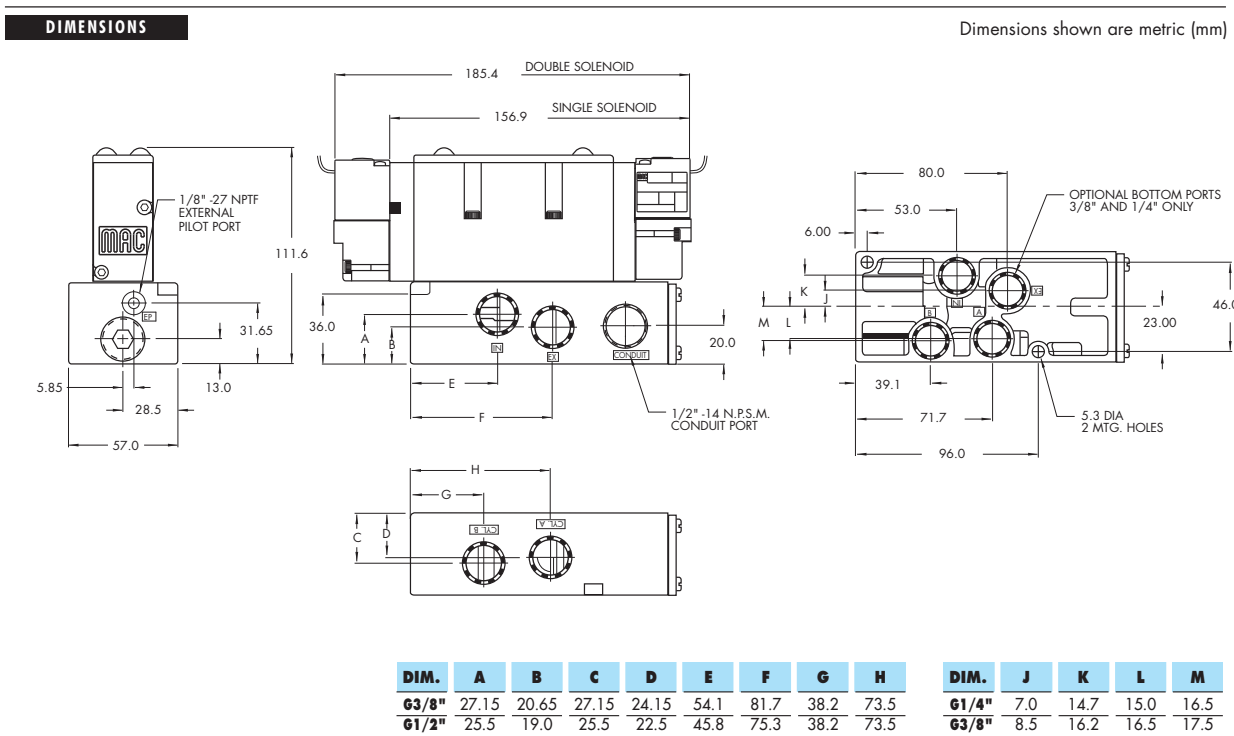
XX Voltage	X Wire length	X Manual operator	XX Electrical connection
JA 110 V~/50Hz	A 45 cm	1 Non-locking	BM Flying leads
JB 220 V~/50Hz	B 60 cm	2 Locking	BN Flying leads with diode
JC 24 V~/50Hz	J Connector		BP Flying leads with M.O.V.
FB 24 V=/1,8W			BG Flying leads with ground
DA 24 V=/5,4W			JB Rectangular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

* Other options available, see page options.

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 :	11,7 mm
Flow (at 6 bar, ΔP=1bar) :	1/4", 3/8": 3000 NI/min (Cv3.0) – 1/2": 3400 NI/min (Cv 3,4)
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
 - Pilot valve mounting screws (x2): 35069



Function Port size Flow [Max] Individual mounting

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

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.

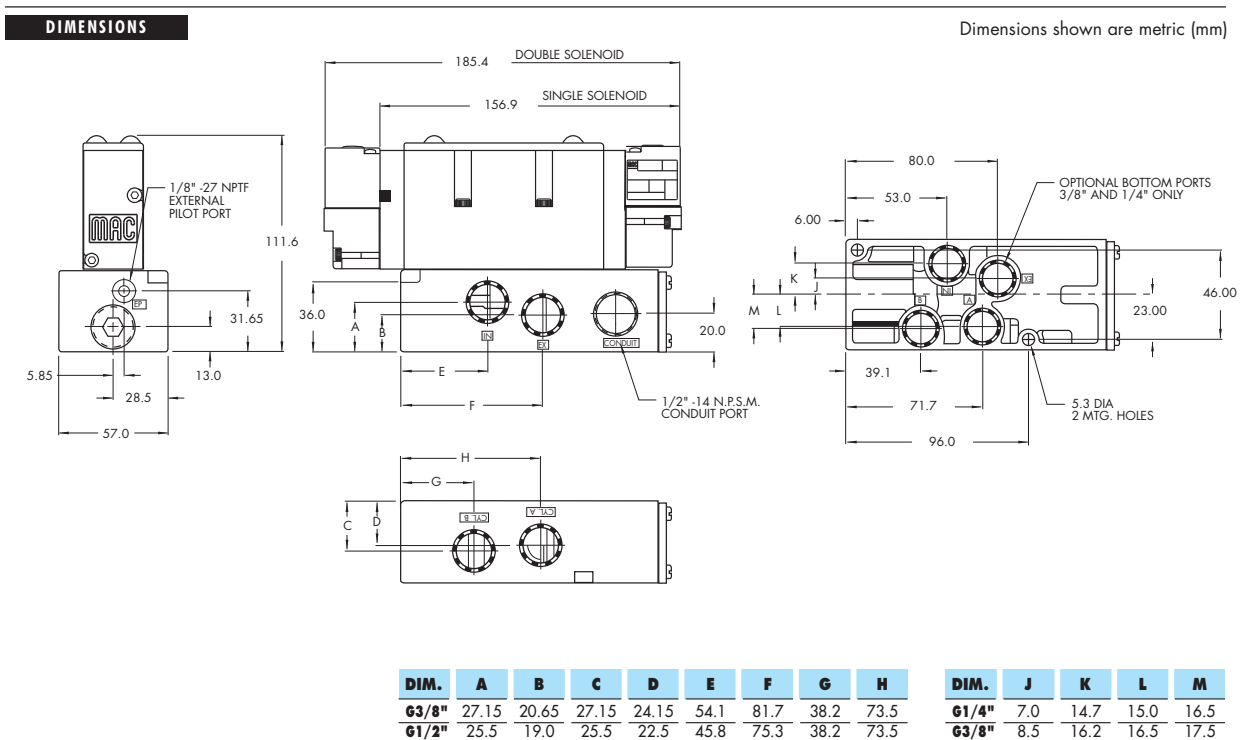
XX Voltage	X Manual operator	XX Electrical connection
JA 110 V~/50Hz	1 Non-locking	DM Plug-in
JB 220 V~/50Hz	2 Locking	DN Plug-in with diode
JC 24 V~/50Hz		DP Plug-in with M.O.V.
FB 24 V=/1,8W		DG Plug-in with ground
DA 24 V=/5,4W		
DF 24 V=/12,7W		

* Other options available, see page options.
Note: Ground required for 30 Volts or higher.

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 :	11,7 mm
Flow (at 6 bar, ΔP=1bar) :	1/4", 3/8": 3000 NI/min (Cv3.0) – 1/2": 3400 NI/min (Cv 3,4)
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
 - Pilot valve mounting screws (x2): 35069



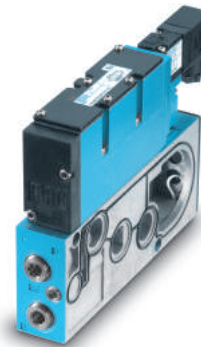


Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Manifold mounting
5/2, 5/3	G3/8" - G1/2"	3800 NI/min	Manifold 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	5/3 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***

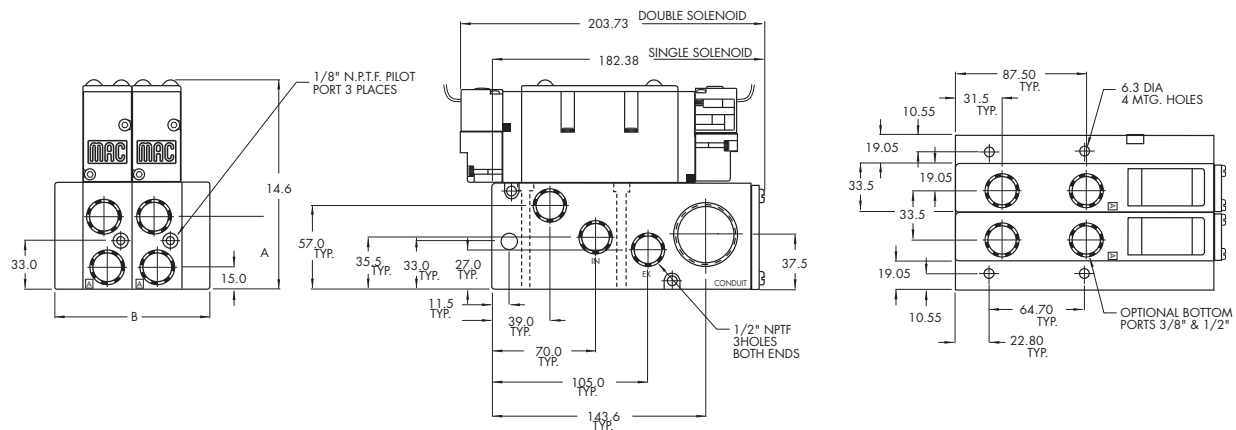
XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JA	110 V~/50Hz	A	45 cm (Flying leads)	1	Non-locking	BM	Flying leads
JB	220 V~/50Hz	B	60 cm (Flying leads)	2	Locking	BN	Flying leads with diode
JC	24 V~/50Hz	J	Connector			KA	Square connector
FB	24 V=/1,8W					KD	Square connector with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

* Other options available, see page options.
End plate kit required (1/2" ports): M-93001-01-01P internal pilot.
M-93001-02-01P 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
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
63/8"	47.66
61/2"	49.32



Direct solenoid and solenoid pilot operated valves

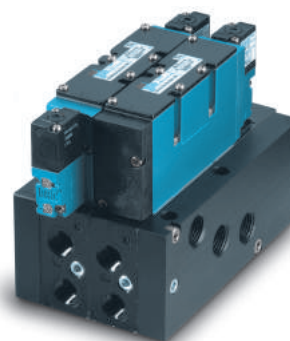
Function Port size Flow [Max] Manifold mounting

5/2, 5/3 G3/8" - G1/2" 3800 NI/min

Manifold 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***

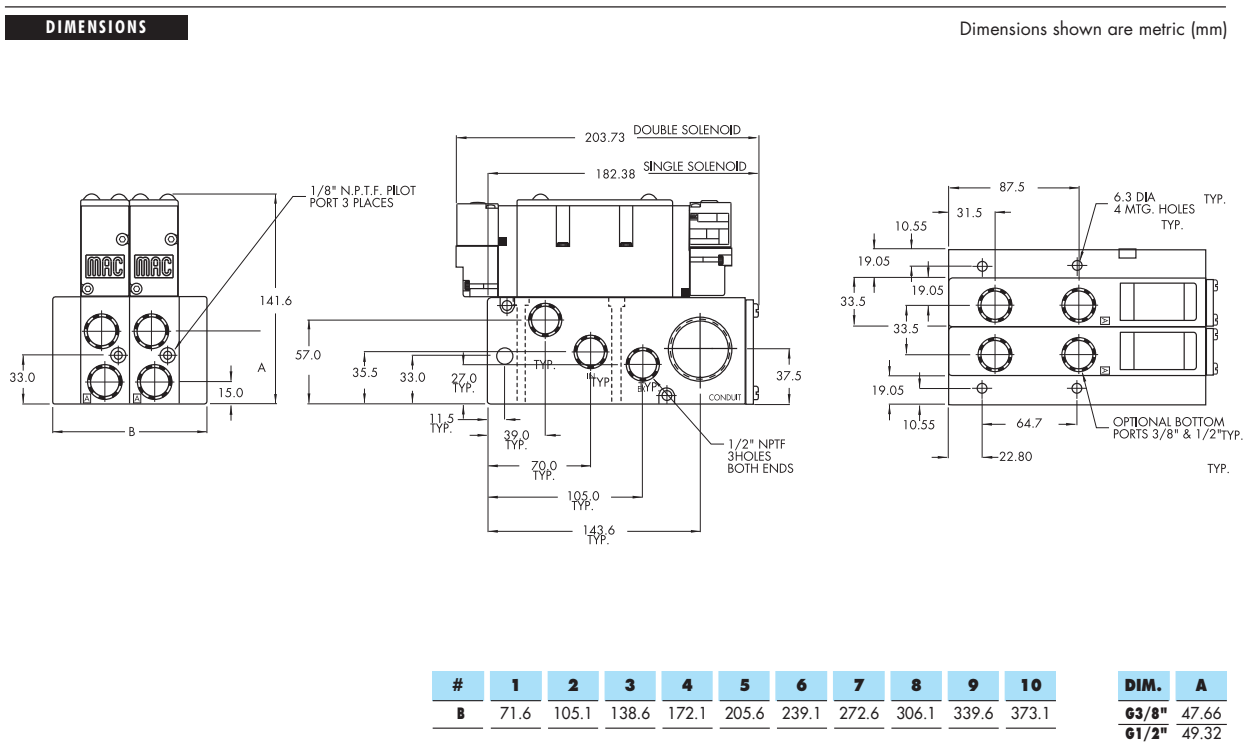
Above model numbers are shown with side ports without light.

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				

* Other options available, see page options.
End plate required (1/2" ports): M-93001-01-01P Internal pilot.
M-93001-02-01P 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
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





Direct solenoid and solenoid pilot operated valves

OPTIONS FOR NON PLUG-IN VALVES

Valve function

93A-**L**XX-XXX-XX-D**XXX-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-X**B**X-XXX-XX-D**XXX-XXX**

- B** standard pilot exhaust
- D** pilot exhaust to main valve exhaust*

Port configuration :

Individual sub-base

93A-XXX-X**A**X-XX-D**XXX-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-X**J**X-XX-D**XXX-XXX**

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

Pilot style :

93A-XXX-XXX-**DM**-D**XXX-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-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-**L**XX-XXX-XX-D**XX**P-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-X**A**X-XXX-XX-D**XX**P-XXX

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

Body electrical

92B-X**A**-XXX-XX-D**XX**P-XXX

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

Port configuration :

Individual sub-base

93A-XXX-X**A**X-XX-D**XX**P-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-X**J**X-XX-D**XX**P-XXX

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

Base/manifold int./ext. pilot

93A-XXX-X**A**-XX-D**XX**P-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**-D**XX**P-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)

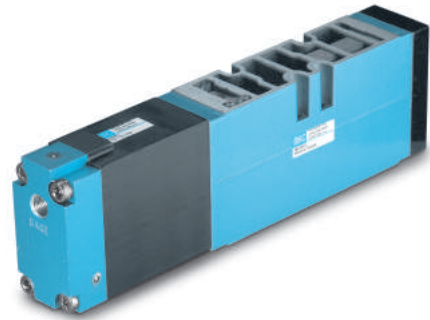
93A-000-XXX (i.e. 93A-000-DJA) - Manifold base

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

Sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR93A-DAAA	PR93A-DBAA	PR93A-DCAA	PR93A-DDAA	PR93A-DEAA
Gauge with face perpendicular to manual operator	PR93A-DABA	PR93A-DBBA	PR93A-DCBA	PR93A-DDBA	PR93A-DEBA
Gauge with face parallel to manual operator	PR93A-DACA	PR93A-DBCA	PR93A-DCCA	PR93A-DDCA	PR93A-DECA

Note: above models are coded for use with single solenoid valves.

REGULATORS FOR "NON PLUG-IN" VALVES

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR93A-EAAA	PR93A-EBAA	PR93A-ECAA	PR93A-EDAA	PR93A-EEAA
Gauge with face perpendicular to manual operator	PR93A-EABA	PR93A-EBBA	PR93A-ECBA	PR93A-EDBA	PR93A-EEBA
Gauge with face parallel to manual operator	PR93A-EACA	PR93A-EBCA	PR93A-ECCA	PR93A-EDCA	PR93A-EECA

Note: Above models may be used with either single or double solenoid valves.

* For use with dual pressure valves.

TECHNICAL DATA

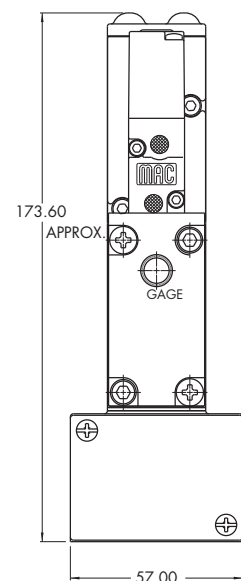
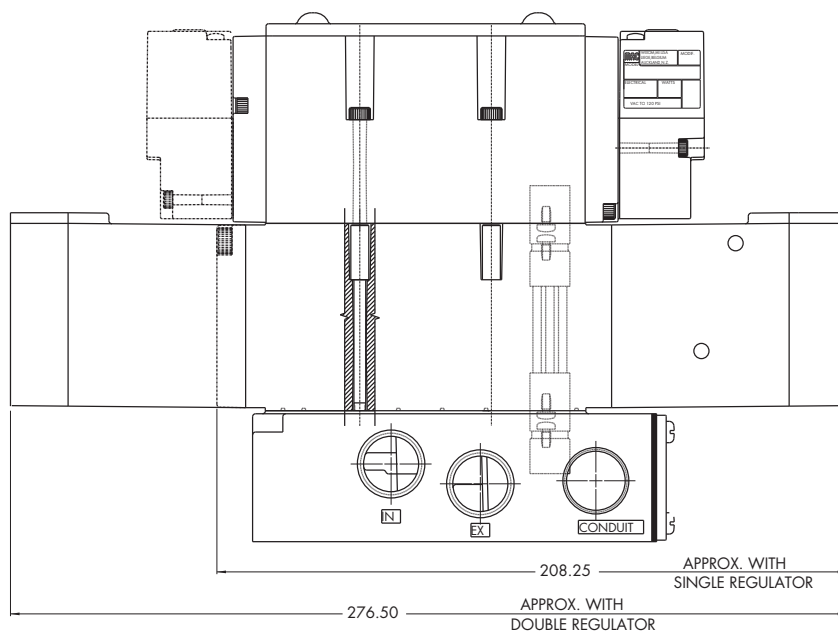
Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	2400 NI/min (Cv 2.4)

Spare parts :

- Regulator end plate kit: R-93004 • Regulator by-pass end plate kit: R-93004-01
- Gauge kit: N-92006-01 (0 to 10,7 bar)
- Pressure regulator (less sandwich block): PR93A-F0AA

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich selector pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Select to A port Regulator A end By-pass plate B end	Select to B port Regulator B end By-pass plate A end	Select to A port Reg. both ends A end low press. B end high press.	Select to B port Reg. both ends A end high press. B end low press.
Gauge port only (plugged)	PR93A-GPAA	PR93A-GRAA	PR93A-GSAA	PR93A-GTAA
Gauge with face perpendicular to manual operator	PR93A-GPBA	PR93A-GRBA	PR93A-GSBA	PR93A-GTBA
Gauge with face parallel to manual operator	PR93A-GPCA	PR93A-GRCA	PR93A-GSCA	PR93A-GTCA

REGULATORS FOR "NON PLUG-IN" VALVES

Gauge	Select to A port Regulator A end By-pass plate B end	Select to B port Regulator B end By-pass plate A end	Select to A port Reg. both ends A end low press. B end high press.	Select to B port Reg. both ends A end high press. B end low press.
Gauge port only (plugged)	PR93A-HPAA	PR93A-HRAA	PR93A-HSAA	PR93A-HTAA
Gauge with face perpendicular to manual operator	PR93A-HPBA	PR93A-HRBA	PR93A-HSBA	PR93A-HTBA
Gauge with face parallel to manual operator	PR93A-HPCA	PR93A-HRCA	PR93A-HSCA	PR93A-HTCA

Notes: - Regulating range for above models is 0 to 8 bar. For other ranges, see technical data page
- Use single pressure valve for all above models.

OPTIONS

Regulator less sandwich block

PR93A-**XOXX**

- J** Knob
- C** Slotted stem
- M** Slotted stem with locknut

Other adjustment

PR93A-**XXXX**

- A** Slotted stem, plug-in
- B** Slotted stem, non plug-in
- K** Slotted stem w/ locknut, plug-in
- L** Slotted stem w/ locknut, non plug-in

Note: Above models may be used with either single or double solenoid valves.

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar):	2400 Nl/min (Cv 2.4)

Spare parts :

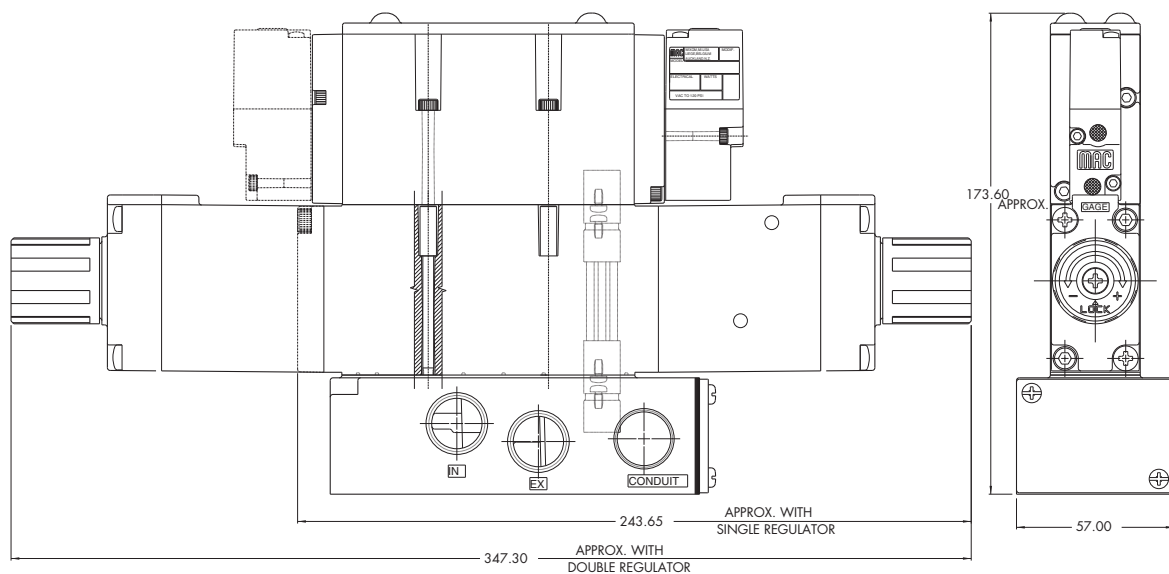
- R-93004 : end plate kit • R-93004-01 : by-pass end plate kit
- Gauge kit 0 – 10,7 bar: N-92006-01 • Gauge kit 0 – 6,7 bar: N-92006-02
- Gauge kit 0-4 bar: N-92006-03

Option:

- Pressure range: PR93A-xxxA (A 0 to 8 bar)
 - B 0 to 5,3 bar
 - C 0 to 2 bar
 - D 0 to 8 bar "A" end, 0 to 5,3 bar "B" end
 - E 0 to 8 bar "B" end, 0 to 5,3 bar "A" end
 - F 0 to 8 bar "A" end, 0 to 2 bar "B" end
 - G 0 to 8 bar "B" end, 0 to 2 bar "A" end
 - H 0 to 5,3 bar "A" end, 0 to 2 bar "B" end
 - J 0 to 5,3 bar "B" end, 0 to 2 bar "A" end

DIMENSIONS

Dimensions shown are metric (mm)



Sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR93A-GAAA	PR93A-GBAA	PR93A-GCAA	PR93A-GDAA	PR93A-GEAA
Gauge with face perpendicular to manual operator	PR93A-GABA	PR93A-GBBA	PR93A-GCBA	PR93A-GDBA	PR93A-GEBA
Gauge with face parallel to manual operator	PR93A-GACA	PR93A-GBCA	PR93A-GCCA	PR93A-GDCA	PR93A-GECA

Note: above models are coded for use with single solenoid valves.

REGULATORS FOR "NON PLUG-IN" VALVES (CODED FOR KNOB ADJUSTMENT)

Gauge	Regulator A end Single pressure	Regulator B end Single pressure	Regulator A * end with by-pass end plate B end	Regulator B* end with by-pass end plate A end	Regulator * both ends
Gauge port only (plugged)	PR93A-HAAA	PR93A-HBAA	PR93A-HCAA	PR93A-HDAA	PR93A-HEAA
Gauge with face perpendicular to manual operator	PR93A-HABA	PR93A-HBBA	PR93A-HCBA	PR93A-HDBA	PR93A-HEBA
Gauge with face parallel to manual operator	PR93A-HACA	PR93A-HBCA	PR93A-HCCA	PR93A-HDCA	PR93A-HECA

* For use with dual pressure valves.

Note: Regulating range for above models is 0 to 8 bar. For other ranges, see technical data page.

OPTIONS

Regulator less sandwich block

PR93A-**x0xx**

- J** Knob
- C** Slotted stem
- M** Slotted stem with locknut

Other adjustment

PR93A-**xxxx**

- A** Slotted stem, plug-in
- B** Slotted stem, non plug-in
- K** Slotted stem w/ locknut, plug-in
- L** Slotted stem w/ locknut, non plug-in

Note: Above models may be used with either single or double solenoid valves.

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 8 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar):	2400 Nl/min (Cv 2.4)

Spare parts :

- R-93004 : end plate kit • R-93004-01 : by-pass end plate kit
- Gauge kit 0 – 10,7 bar: N-92006-01 • Gauge kit 0 – 6,7 bar: N-92006-02
- Gauge kit 0-4 bar: N-92006-03

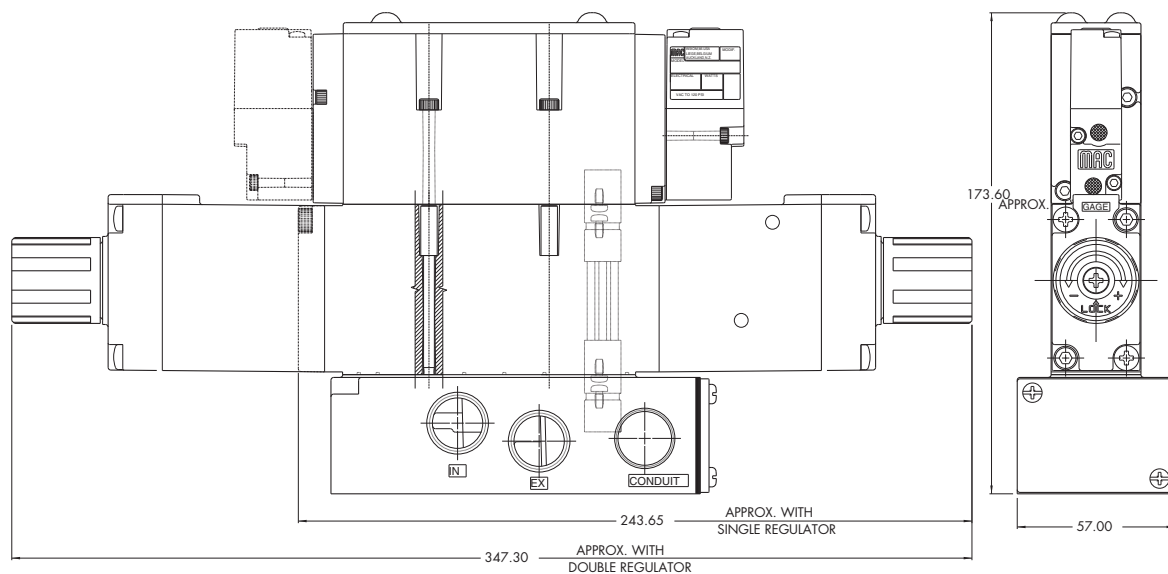
Option:

- Pressure range: PR93A-xxxA (A 0 to 8 bar)

- B 0 to 5,3 bar
- C 0 to 2 bar
- D 0 to 8 bar "A" end, 0 to 5,3 bar "B" end
- E 0 to 8 bar "B" end, 0 to 5,3 bar "A" end
- F 0 to 8 bar "A" end, 0 to 2 bar "B" end
- G 0 to 8 bar "B" end, 0 to 2 bar "A" end
- H 0 to 5,3 bar "A" end, 0 to 2 bar "B" end
- J 0 to 5,3 bar "B" end, 0 to 2 bar "A" end

DIMENSIONS

Dimensions shown are metric (mm)



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		



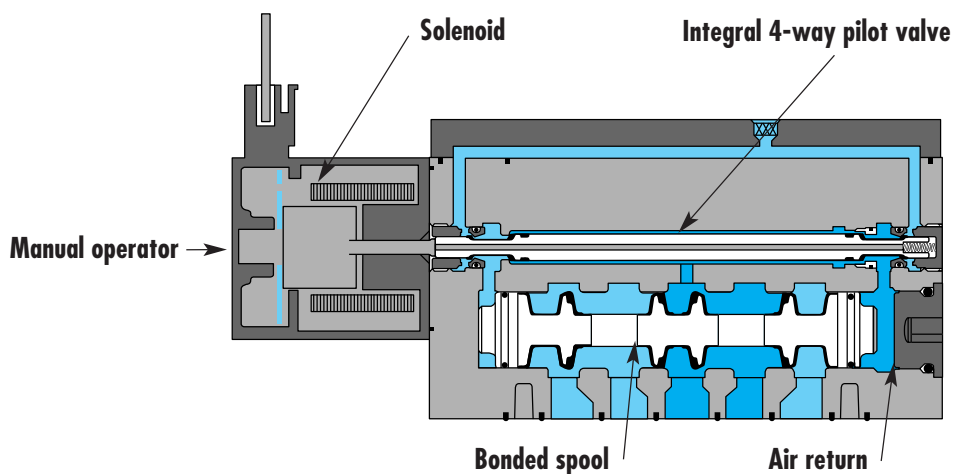
Direct solenoid and solenoid pilot operated valves

Individual mounting

Valve only – No base non “plug-in” Conform to ISO 15407/1	Valve only – No base plug-in Conform to ISO 15407/2
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Manifold mounting

Valve only – No base non “plug-in” Conform to ISO 15407/1	Valve only – No base plug-in Conform to ISO 15407/2
---	---



SERIES FEATURES

- High force MACSOLENOID®.
- Integral 4-way pilot design.
- 2-position, single or double operator.
- 3-position, double solenoid, open centre, closed centre and pressure centre.
- Internal or external pilot.
- Single or dual pressure.

Function Port size Flow [Max] Individual/Manifold mounting

5/2, 5/3

G1/4"

1000 NI/min

Valve only -
No base
non "plug-in"
Conform to
ISO 15407/1

OPERATIONAL BENEFITS

1. Unique patented MACsolenoid® with oval shaped armature for fastest possible response times.
2. Balanced poppet 5-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. Pilot valve and main valve in the same body.
6. Internal or external pilot operation.
7. Air only return
8. 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-A01A-AAMA-Jxxx-xxx	MV-A01A-ABMA-Jxxx-xxx	MV-A01A-AEMA-Jxxx-xxx	MV-A01A-AFMA-Jxxx-xxx
External "12" end	MV-A01A-AAMD-Jxxx-xxx	MV-A01A-ABMD-Jxxx-xxx	MV-A01A-AEMD-Jxxx-xxx	MV-A01A-AFMD-Jxxx-xxx
External "14" end	MV-A01A-AAME-Jxxx-xxx	MV-A01A-ABME-Jxxx-xxx	MV-A01A-AEME-Jxxx-xxx	MV-A01A-AFME-Jxxx-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
Internal from port #3	MV-A01A-ACMB-Jxxx-xxx	MV-A01A-ADMB-Jxxx-xxx	MV-A01A-AHMB-Jxxx-xxx
Internal from port #5	MV-A01A-ACMC-Jxxx-xxx	MV-A01A-ADMC-Jxxx-xxx	MV-A01A-AHMC-Jxxx-xxx
External from "12" end	MV-A01A-ACMD-Jxxx-xxx	MV-A01A-ADMD-Jxxx-xxx	MV-A01A-AHMD-Jxxx-xxx
External from "14" end	MV-A01A-ACME-Jxxx-xxx	MV-A01A-ADME-Jxxx-xxx	MV-A01A-AHME-Jxxx-xxx

SOLENOID OPERATOR ➤

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,4W	0	No lead wire/ connector	1	Non-locking	BA	Flying leads
DB	12V=/5,4W	A	45 cm	2	Locking	JA	Square connector
DC	24V=/2,4W	B	60 cm			JC	Square connector with light
DD	12V=/2,4W	C	90 cm			JB	Rectangular connector
DE	24V=/1,8W					JD	Rectangular connector with light
DU	24V=/1,0W					KA	Mini square connector
						KD	Mini square connector with light

* Other options available, see page options.

Note: - ISO series, valve and base are ordered separately, see page for base codes.

- If sandwich regulator is required, valve must be ordered as external pilot. For internal pilot regulator use valve with external pilot 12 end valve - for external pilot regulator, use valve with external pilot 12 or 14 end.

OPTIONS

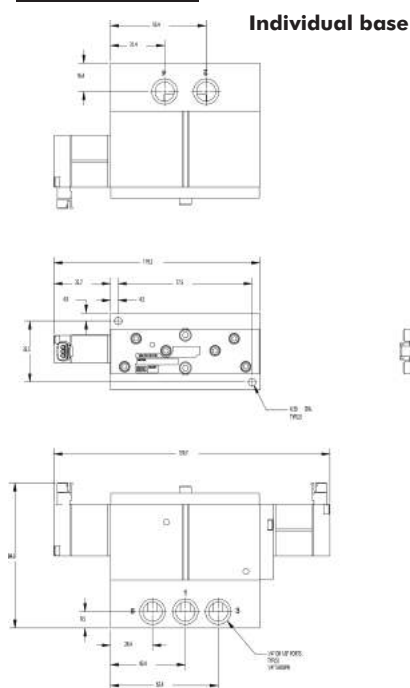
Pilot exhaust: MV-A01A-XX X Jxxx-xxx

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

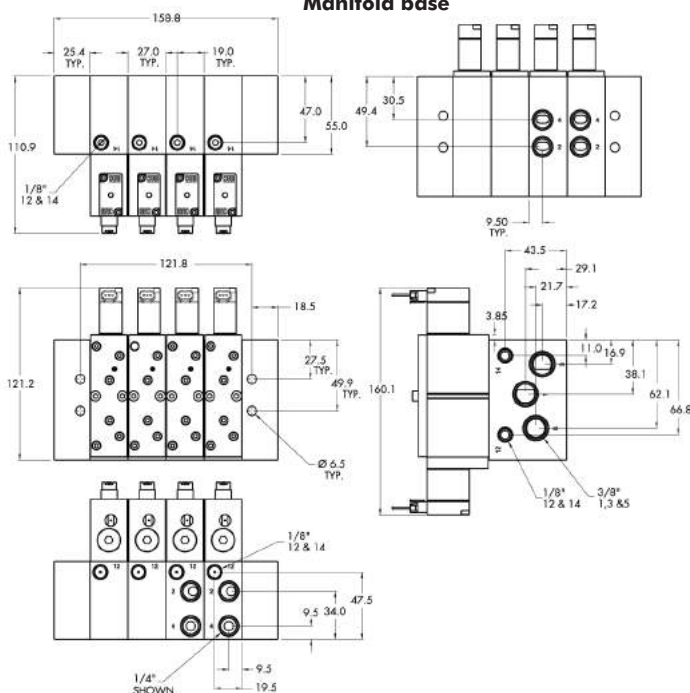
TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos.: 1,4 to 8 bar 3 pos.: 2,3 to 8 bar External pilot – Vacuum to 8 bar
Pilot pressure :	2 pos.: 1,4 to 8 bar – 3 pos.: 2,3 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	6 mm
Flow (at 6 bar, ΔP=1bar) :	2 pos.: 1000 Nl/min (Cv 1.0) – 3 pos. 800 Nl/min (Cv 0.8)
Coil :	Epoxy encapsulated – Class F wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Power :	1,0 to 5,4 W

- Options :
- Sandwich flow controls: FCA01A-AA (screwdriver slot adjustment).
 - Sandwich pressure regulator, see 'Regulators' section

DIMENSIONS



Manifold base





Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow [Max]	Individual/Manifold mounting
5/2, 5/3	G1/4"	1000 NI/min	Valve only No base Plug-in Conform to ISO 15407/2

OPERATIONAL BENEFITS

1. Unique patented MACsolenoid® with oval shaped armature for fastest possible response times.
2. Balanced poppet 5-way pilot 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. Pilot valve and main valve in the same body.
6. Internal or external pilot operation.
7. Air only return
8. Valve width: 26 mm.



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-P01A-AACA-RxxP-xxx	MV-P01A-ABCA-RxxP-xxx	MV-P01A-AECA-RxxP-xxx	MV-P01A-AFCA-RxxP-xxx
External "12" end	MV-P01A-AACD-RxxP-xxx	MV-P01A-ABCD-RxxP-xxx	MV-P01A-AECD-RxxP-xxx	MV-P01A-AFCD-RxxP-xxx
External "14" end	MV-P01A-AACE-RxxP-xxx	MV-P01A-ABCE-RxxP-xxx	MV-P01A-AECE-RxxP-xxx	MV-P01A-AFCE-RxxP-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
Internal from port #3	MV-P01A-ACCB-RxxP-xxx	MV-P01A-ADCB-RxxP-xxx	MV-P01A-AHCB-RxxP-xxx
Internal from port #5	MV-P01A-ACCC-RxxP-xxx	MV-P01A-ADCC-RxxP-xxx	MV-P01A-AHCC-RxxP-xxx
External from "12" end	MV-P01A-ACCD-RxxP-xxx	MV-P01A-ADCD-RxxP-xxx	MV-P01A-AHCD-RxxP-xxx
External from "14" end	MV-P01A-ACCE-RxxP-xxx	MV-P01A-ADCE-RxxP-xxx	MV-P01A-AHCE-RxxP-xxx

SOLENOID OPERATOR ►

R **xxP-xxx** *

XX Voltage	X Manual operator	XX Electrical connection
AA* 120 VAC	0 Non operator	PA Base plug-in
AC* 24 VAC	1 Recessed non locking	PB Base plug-in with light
DC 24V=/1.8W	3 Extended non locking	PC Base plug-in with MOV
DD 24V=/2.5W		PD Base plug-in with light & MOV
DE 24V=/3.0W		
DF 24V=/4.0W		
DJ 12V=/1.8W		
DK 12V=/2.5W		
DL 12V=/3.0W		
DM 12V=/4.0W		

* Use either PA or PB connector

Note: ISO series, valve and base are ordered separately, see page for base codes. **

Other options available, see page options.

OPTIONS

Pilot exhaust: MV-P01A-XXxMVx-RxxP-xxx

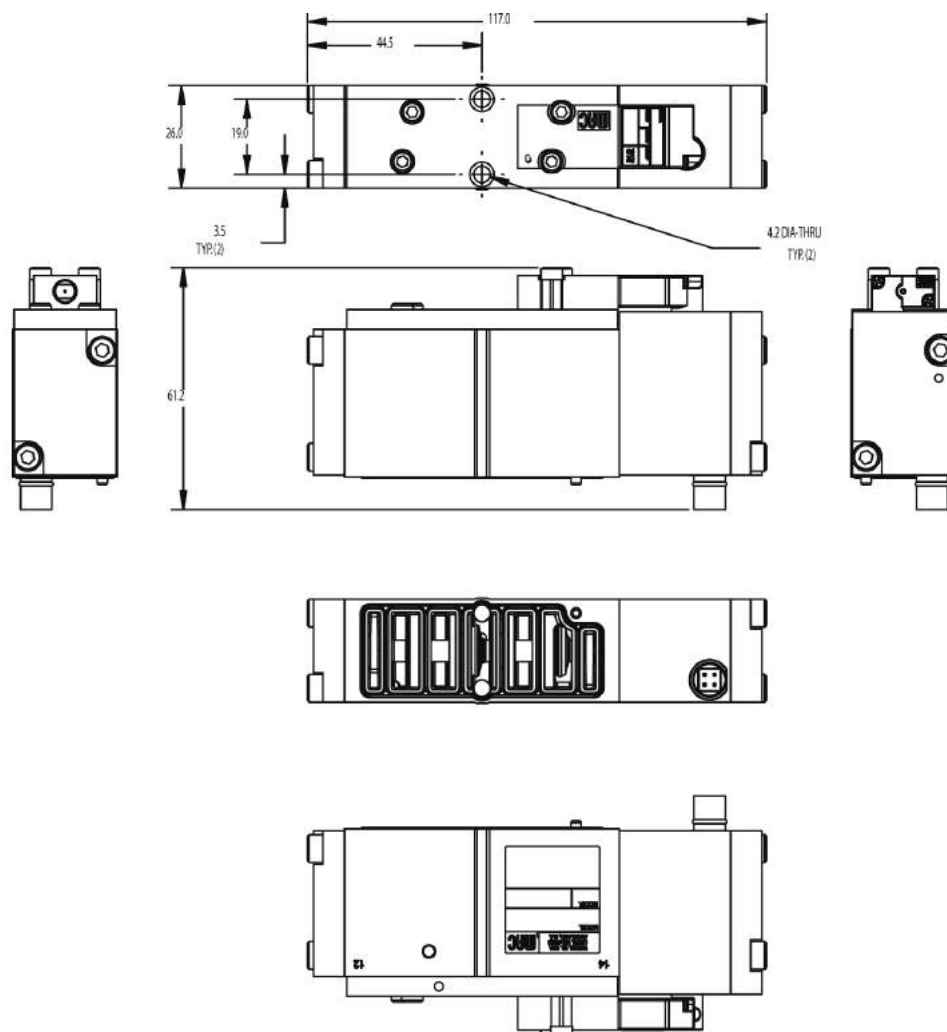
- C Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust out main exhaust

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 pos.: 1,3 to 8 bar – 3 pos.: 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
Flow (at 6 bar, ΔP=1 bar) :	2 pos.: 1000 Nl/min (Cv 1.0) – 3 pos.: 800 Nl/min (Cv.8)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% to +10%
Power :	1,8 to 5,4 W

DIMENSIONS

Dimensions shown are metric (mm)



Non plug-in individual / manifold base



HOW TO ORDER

INDIVIDUAL BASE

Port size	Pilot air	Side ports	Bottom 2 & 4 ports With all side ports
G1/4"	Internal	MB-A01A-221	MB-A01A-222

MANIFOLD BASE

Port size	Pilot air	Side ports	Bottom 2 & 4 ports With side 1, 3 & 5 ports
G1/4"	Internal	MM-A01A-221	MM-A01A-222

Notes:

- For manifold bases external pilot is common
- A base is ordered as internal pilot and can be changed into external pilot by removing pipe plugs from the external pilot ports (individual base).
- Manifold base: same base for internal and external pilot, different end plate kits.

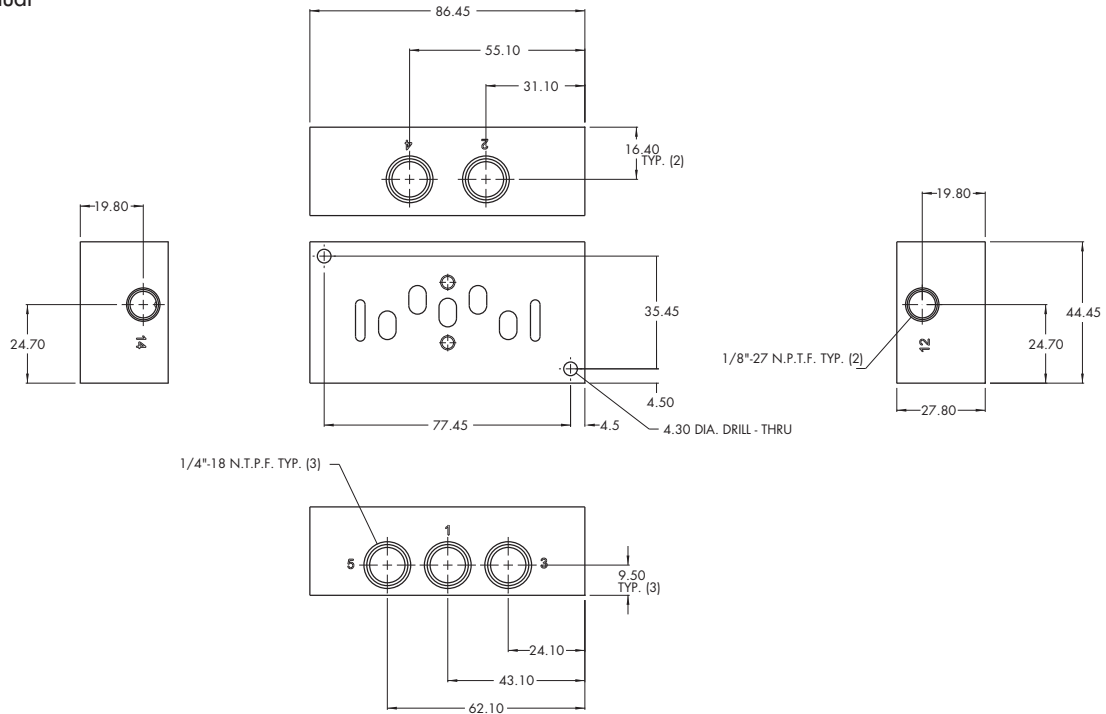
End plate kit: Internal pilot M-00017-01-01P
External pilot M-00017-02-01P

Inlet/exhaust isolator: 28413

DIMENSIONS

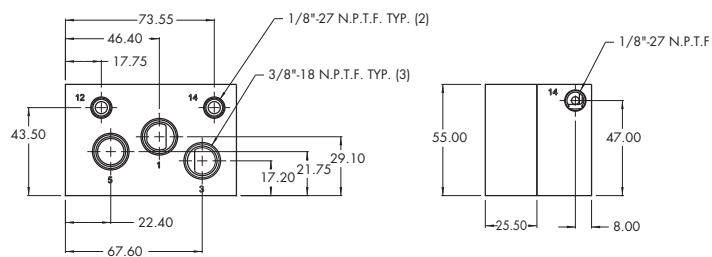
Dimensions shown are metric (mm)

Individual

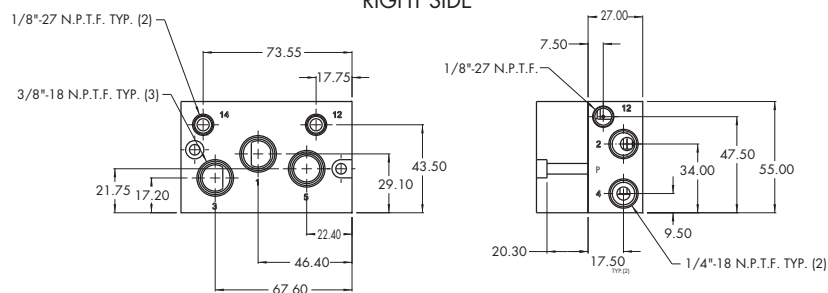


Manifold

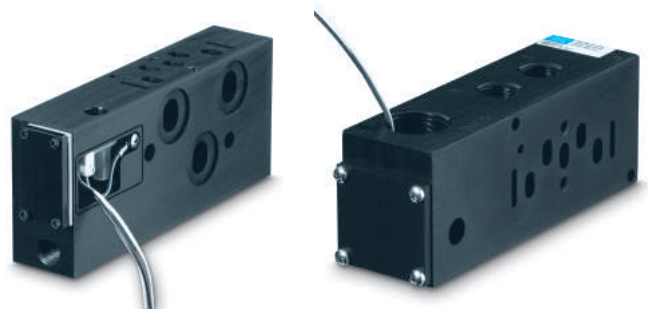
LEFT SIDE



RIGHT SIDE



Plug-in individual / manifold base



HOW TO ORDER

INDIVIDUAL BASE

Port size	Pilot air	Side ports with all side ports	Bottom 2 & 4 ports
G1/4"	Internal	MB-P01A-221	MB-P01A-222

MANIFOLD BASE

Port size	Pilot air	Side ports With side 1, 3 & 5 ports	Bottom 2 & 4 ports
G1/4"	Internal	MM-P01A-221	MM-P01A-222

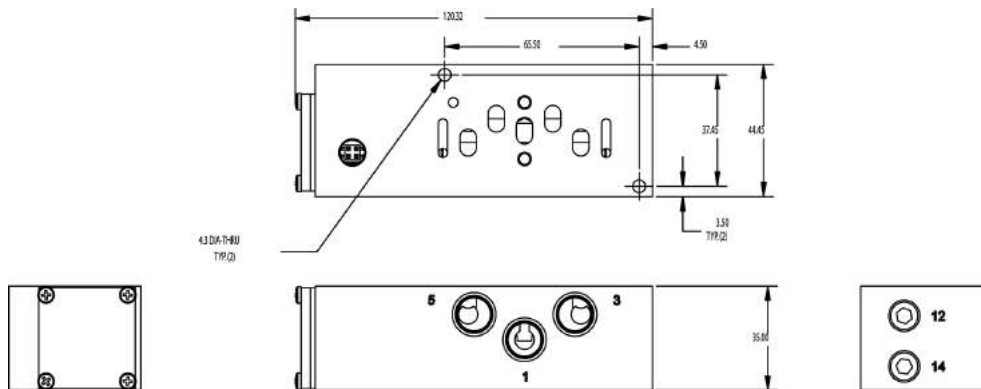
Notes:

- For manifold bases external pilot is common
- End plate kit: Internal pilot M-00020-01-01P
External pilot M-00020-02-01P

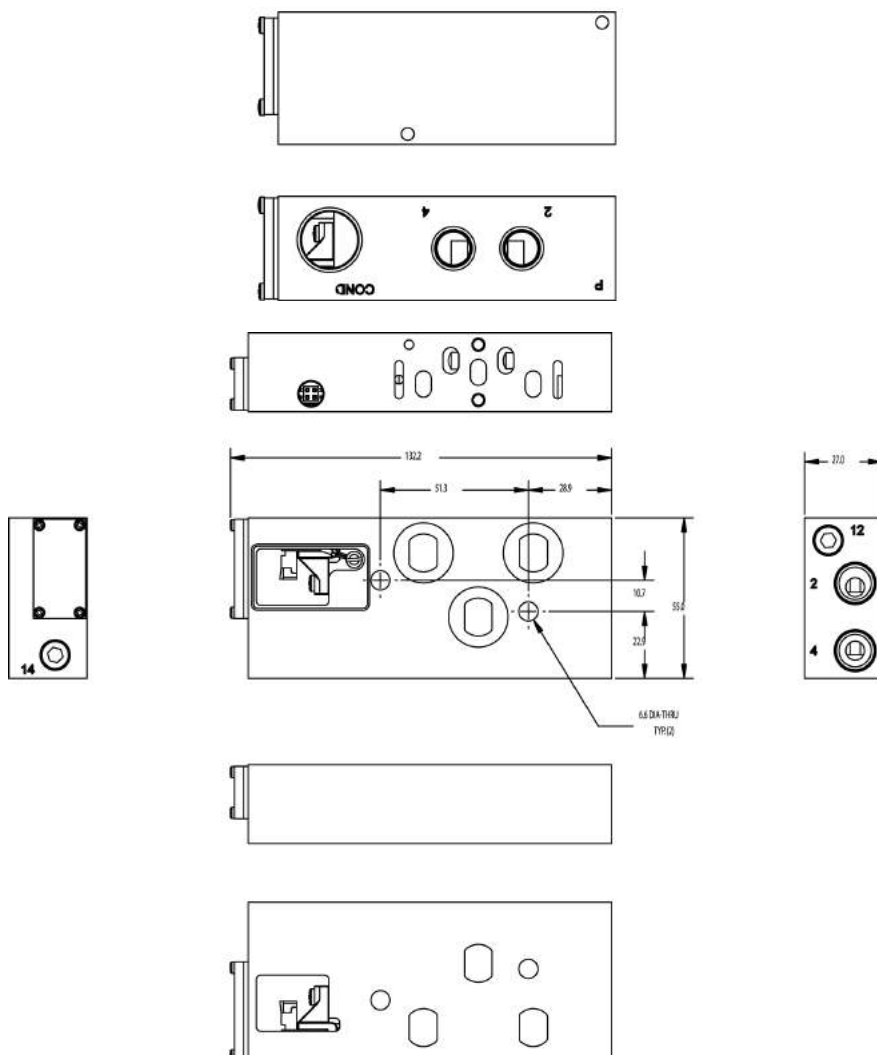
DIMENSIONS

Dimensions shown are metric (mm)

Individual



Manifold



Non plug-in sandwich pressure regulator with manual adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs and space in comparison with inline regulators
2. Compact all-included units
3. Large orifice provides high flow
4. Various functions available
5. Simple, reliable and solid design



HOW TO ORDER

Pilot	Single pressure Regulator 12 end	Dual pressure Regulator 12 end with by-pass 14 end *	Dual pressure Regulator 14 end with by-pass 12 end *	Dual pressure Regulator both ends *
Internal	PRA01A-AAAA	PRA01A-ABAA	PRA01A-ADAA	PRA01A-AEAA
External	PRA01A-BAAA	PRA01A-BBAA	PRA01A-BDAA	PRA01A-BEAA

Above models are for manual adjust with knob
For other manual adjustments and pressure ranges, see Options.

Note: Add -9 after part number for regulator block assembled to valve.

* To be used with dual pressure valves.

OPTIONS

Adjustments :

PRA01A - xxxx

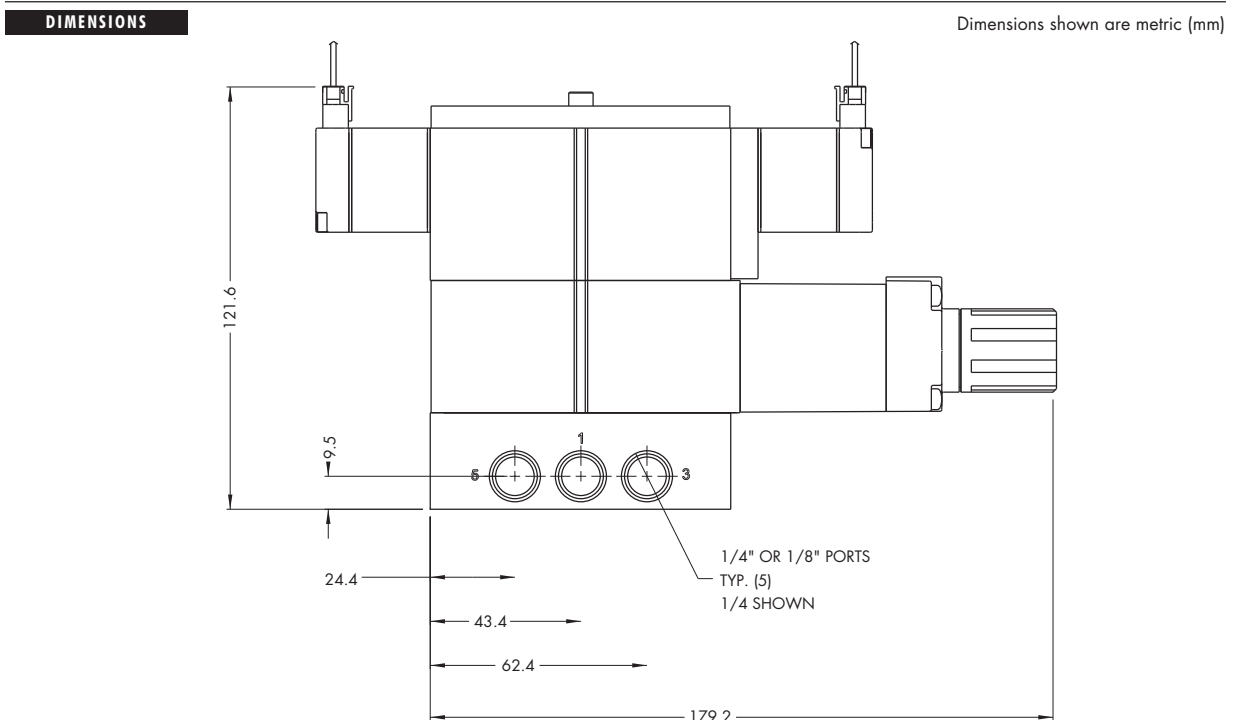
- A** Manual adjust with knob – Internal pilot
- B** Manual adjust with knob – External pilot
- G** Manual adjust with screwdriver slot – Internal pilot
- H** Manual adjust with screwdriver slot – External pilot
- K** Manual adjust with screwdriver slot with locknut – Internal pilot
- L** Manual adjust with screwdriver slot with locknut – External pilot

Regulated Pressure range :

PRA01A - xxxxx

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar
- D** 0 to 8 bar "14" end – 0 to 5,3 bar "12" end
- E** 0 to 8 bar "12" end – 0 to 5,3 bar "14" end
- F** 0 to 8 bar "14" end – 0 to 2 bar "12" end
- G** 0 to 8 bar "12" end – 0 to 2 bar "14" end
- H** 0 to 5,3 bar "14" end – 0 to 2 bar "12" end
- J** 0 to 5,3 bar "12" end – 0 to 2 bar "14" end

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure supply :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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





P r e s s u r e r e g u l a t o r s

Non plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators
2. Compact all-included units
3. Large orifice provides high flow
4. Various functions available
5. Simple, reliable and solid design

HOW TO ORDER

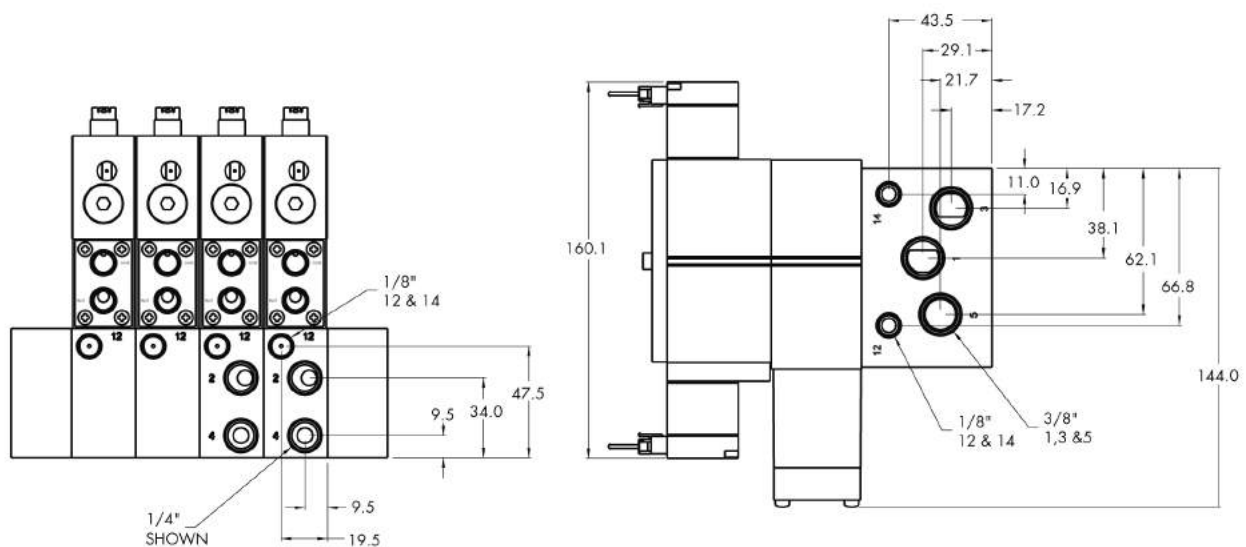
Pilot	Single pressure Regulator 12 end	Dual pressure Regulator 12 end with by-pass 14 end *	Dual pressure Regulator 14 end with by-pass 12 end *	Dual pressure Regulator both ends *
Internal	PRA01A-DAAA	PRA01A-DBAA	PRA01A-DDAA	PRA01A-DEAA
External	PRA01A-EAAA	PRA01A-EBAA	PRA01A-EDAA	PRA01A-EEAA

Note : Only pressure range available for air adjust regulator is 0-8 bar.

* To be used with dual pressure valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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

DIMENSIONS Dimensions shown are metric (mm)





P r e s s u r e r e g u l a t o r s

Plug-in sandwich pressure regulator with manual adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs and space in comparison with inline regulators
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.

HOW TO ORDER

Pilot	Single pressure Regulator 12 end	Dual pressure Regulator 12 end with by-pass 14 end *	Dual pressure Regulator 14 end with by-pass 12 end *	Dual pressure Regulator both ends *
Internal	PRP01A-AAAA	PRP01A-ABAA	PRP01A-ADAA	PRP01A-AEAA
External	PRP01A-BAAA	PRP01A-BBAA	PRP01A-BDAA	PRP01A-BEAA

Above models are for manual adjust with knob
For other adjustments and pressure ranges, see Options.

* To be used with dual pressure valves.

OPTIONS

Adjustments :

PRP01A - xxxx

- A** Manual adjust with knob – Internal pilot
- B** Manual adjust with knob – External pilot
- G** Manual adjust with screwdriver slot – Internal pilot
- H** Manual adjust with screwdriver slot – External pilot
- K** Manual adjust with screwdriver slot with locknut– Internal pilot
- L** Manual adjust with screwdriver slot with locknut – External pilot

Regulated Pressure range :

PRP01A - xxxxx

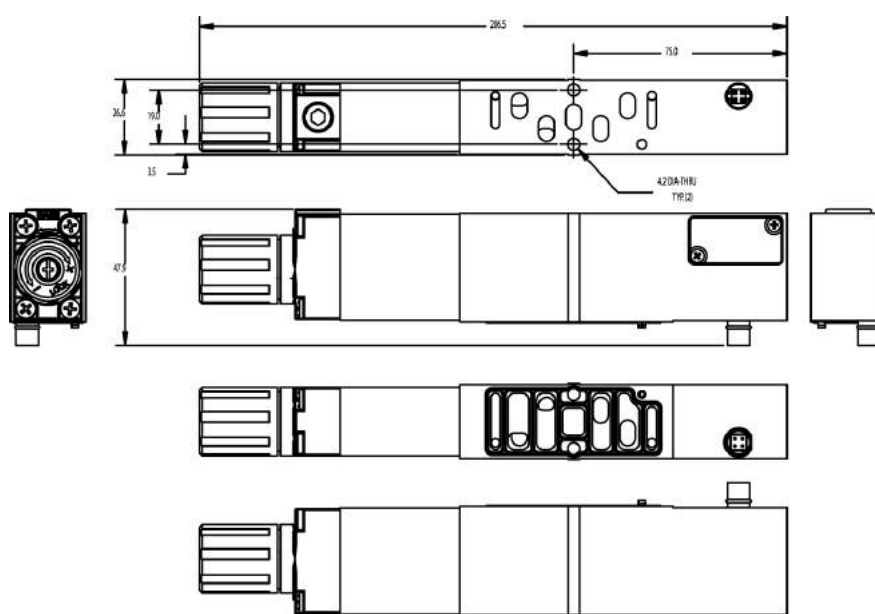
- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar
- D** 0 to 8 bar "14" end – 0 to 5,3 bar "12" end
- E** 0 to 8 bar "12" end – 0 to 5,3 bar "14" end
- F** 0 to 8 bar "14" end – 0 to 2 bar "12" end
- G** 0 to 8 bar "12" end – 0 to 2 bar "14" end
- H** 0 to 5,3 bar "14" end– 0 to 2 bar "12" end
- J** 0 to 5,3 bar "12" end – 0 to 2 bar "14" end

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure supply :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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

DIMENSIONS

Dimensions shown are metric (mm)





Plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs and space in comparison with inline regulators
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design

HOW TO ORDER

Pilot	Single pressure Regulator 12 end	Dual pressure Regulator 12 end with by-pass 14 end *	Dual pressure Regulator 14 end with by-pass 12 end *	Dual pressure Regulator both ends *
Internal	PRP01A-DAAA	PRP01A-DBAA	PRP01A-DDAA	PRP01A-DEAA
External	PRP01A-EAAA	PRP01A-EBAA	PRP01A-EDAA	PRP01A-EEAA

Note: Only pressure range available for air adjust is 0-8 bar

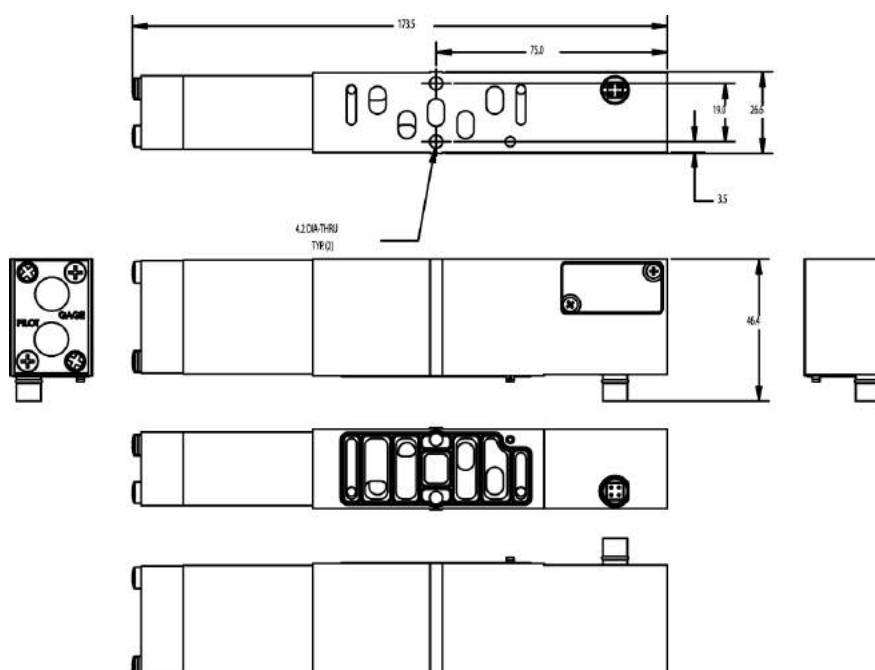
* To be used with dual pressure valves.

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure supply :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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

DIMENSIONS

Dimensions shown are metric (mm)



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **R XX X - X XX**
(Plug-in series) **1 2 3 4**

1. VOLTAGE		3. MANUAL OPERATOR	
R XX X - XXX	VOLTAGE	R XX X - XXX	MANUAL OPERATOR
DB	24 VDC (1.0W)	0	No operator
DC	24 VDC (1.8W)	1	Non-locking recessed
DD	24 VDC (2.5W)	3	Non-locking extended
DE	24 VDC (3.0W)		
DF	24 VDC (4.0W)		
DH	12 VDC (1.0W)		
DJ	12 VDC (1.8W)		
DK	12 VDC (2.5W)		
DL	12 VDC (3.0W)		
DM	12 VDC (4.0W)		
EA*	24 VDC (60W)		
EB*	24 VDC (90W)		
EC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT		4. ELECTRICAL CONNECTION	
R XX X - XXX	WIRE LENGHT	ELECTRICAL CONNECTION FOR NON PLUG-IN VALVES	
0*	No lead wire	R XX X - XXX	
A	45 cm - 18"	BA	Flying leads
B	60 cm - 24"	BB	Flying leads with LED
C	90 cm - 36"	BC	Flying leads with MOV
D	120 cm - 48"	BD	Flying leads with LED and MOV
E	180 cm - 72"	DA	Base plug-in
F	240 cm - 96"	DB	Base plug-in with LED
G	300 cm - 120"	DC	Base plug-in with MOV
H	365 cm - 144"	DD	Base plug-in with LED and MOV
P	Base plug-in	RA	Mini JAC solenoid
* Not available for flying leads connector		RB	Mini JAC solenoid with LED
		RC	Mini JAC solenoid with MOV
		RD	Mini JAC solenoid with LED and MOV
		TA	JST solenoid plug-in
		TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
		ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
		R XX X - XXX	
		PA	Base plug-in
		PB	Base plug-in with light
		PC	Base plug-in with MOV
		PD	Base plug-in with light and MOV

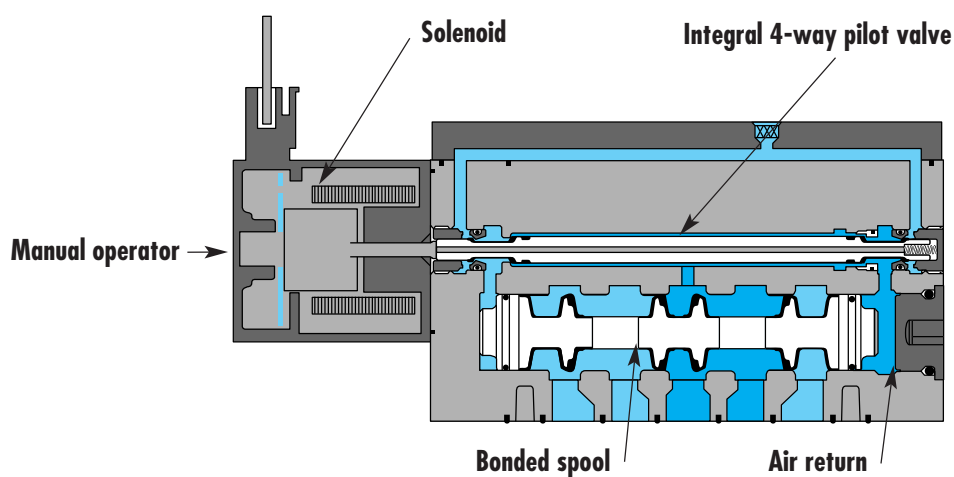
Direct solenoid and solenoid pilot operated valves

Individual mounting

Valve only – No base non “plug-in” Conform to ISO 15407/1	Valve only – No base plug-in Conform to ISO 15407/2
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Manifold mounting

Valve only – No base non “plug-in” Conform to ISO 15407/1	Valve only – No base plug-in Conform to ISO 15407/2
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SERIES FEATURES

- High force MACSOLENOID®.
- Integral 4-way pilot design.
- 2-position, single or double operator.
- 3-position, double solenoid, open centre, closed centre and pressure centre.
- Internal or external pilot.
- Single or dual pressure.

Function Port size Flow [Max] Individual/Manifold mounting

5/2, 5/3 **G1/8"** **430 NI/min**

Valve only -
No base
non "plug-in"
Conform to
ISO 15407/1

OPERATIONAL BENEFITS

1. Unique patented MACsolenoid® with oval shaped armature for fastest possible response times.
2. Balanced poppet 5-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. Pilot valve and main valve in the same body.
6. Internal or external pilot operation.
7. Air only return
8. Optional low wattage DC solenoid down to 1.0 Watt.
9. Valve width: 18 mm.



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-A02A-AAMA-Jxxx-xxx	MV-A02A-ABMA-Jxxx-xxx	MV-A02A-AEMA-Jxxx-xxx	MV-A02A-AFMA-Jxxx-xxx
External "12" end	MV-A02A-AAMD-Jxxx-xxx	MV-A02A-ABMD-Jxxx-xxx	MV-A02A-AEMD-Jxxx-xxx	MV-A02A-AFMD-Jxxx-xxx
External "14" end	MV-A02A-AAME-Jxxx-xxx	MV-A02A-ABME-Jxxx-xxx	MV-A02A-AEME-Jxxx-xxx	MV-A02A-AFME-Jxxx-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
Internal from port #3	MV-A02A-ACMB-Jxxx-xxx	MV-A02A-ADMB-Jxxx-xxx	MV-A02A-AHMB-Jxxx-xxx
Internal from port #5	MV-A02A-ACMC-Jxxx-xxx	MV-A02A-ADMC-Jxxx-xxx	MV-A02A-AHMC-Jxxx-xxx
External from "12" end	MV-A02A-ACMD-Jxxx-xxx	MV-A02A-ADMD-Jxxx-xxx	MV-A02A-AHMD-Jxxx-xxx
External from "14" end	MV-A02A-ACME-Jxxx-xxx	MV-A02A-ADME-Jxxx-xxx	MV-A02A-AHME-Jxxx-xxx

SOLENOID OPERATOR ▶

XX	Voltage	X	Lead wire length	X	Manual operator	XX	Electrical connection
DA	24V=/5,4W	0	No lead wire/ connector	1	Non-locking	BA	Flying leads
DB	12V=/5,4W	A	45 cm	2	Locking	JA	Square connector
DC	24V=/2,4W	B	60 cm			JC	Square connector with light
DD	12V=/2,4W	C	90 cm			JB	Rectangular connector
DE	24V=/1,8W					JD	Rectangular connector with light
DU	24V=/1,0W					KA	Mini square connector
						KD	Mini square connector with light

* Other options available, see page options.

Note: - ISO series, valve and base are ordered separately, see page for base codes.

- If sandwich regulator is required, valve must be ordered as external pilot. For internal pilot regulator use valve with external pilot 12 end valve - for external pilot regulator, use valve with external pilot 12 or 14 end.

OPTIONS

Pilot exhaust: MV-A02A-XX X X-Jxxx-xxx

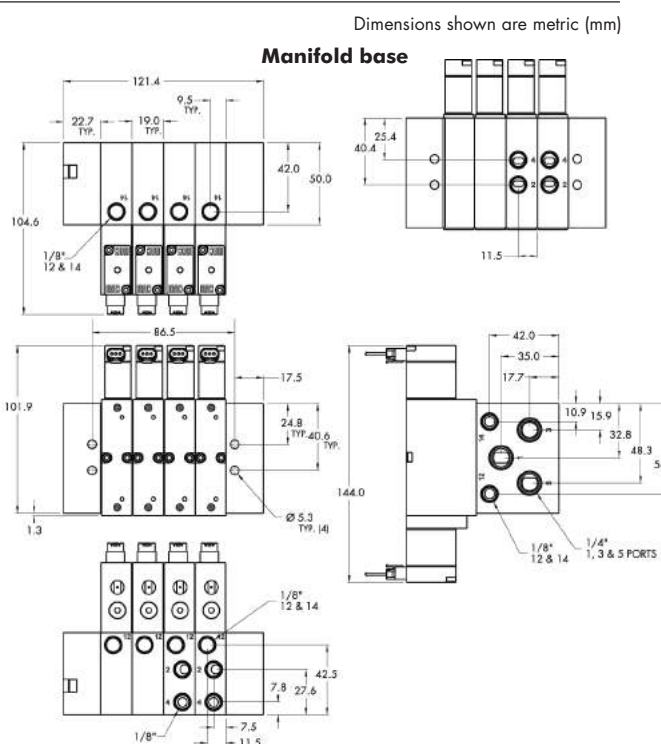
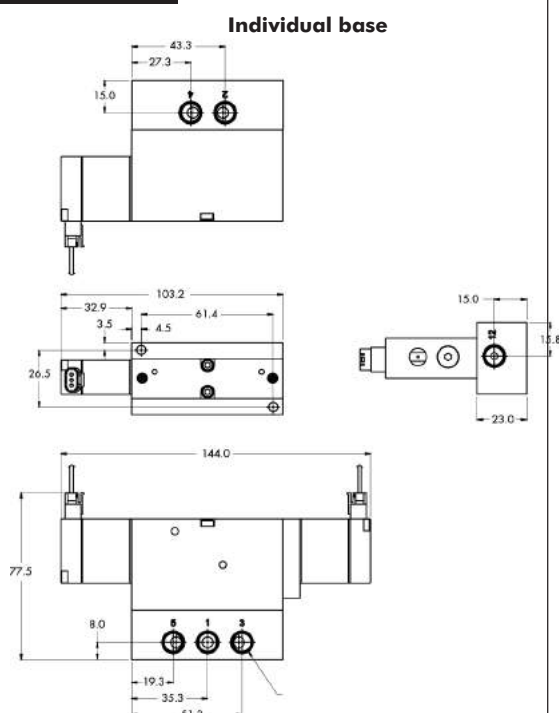
- M** Pilot exhaust muffled
- R** Pilot exhaust piped M5
- U** Pilot exhaust out main exhaust

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot – 2 pos.: 1,4 to 8 bar 3 pos.: 2,3 to 8 bar External pilot – Vacuum to 8 bar
Pilot pressure :	2 pos.: 1,4 to 8 bar – 3 pos.: 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 :	4 mm
Flow (at 6 bar, ΔP=1bar) :	2 pos.: 430 Nl/min (Cv 0.43) – 3 pos.: 280 Nl/min (Cv 0.28)
Coil :	Epoxy encapsulated – Class A wires - 100% ED
Voltage range :	-15% to +10% of nominal voltage
Power :	1,0 to 5,4 W

- Options :
- Sandwich flow controls: FCA02A-AA (screwdriver slot adjustment).
 - Sandwich pressure regulator, see 'Regulators' section

DIMENSIONS





Direct solenoid and solenoid pilot operated valves

Function Port size Flow [Max] Individual/Manifold mounting

5/2, 5/3

G1/8"

510 NI/min

Valve only –
No base
"plug-in"
Conform to
ISO 15407/2

OPERATIONAL BENEFITS

1. Unique patented MACsolenoid® with oval shaped armature for fastest possible response times.
2. Balanced poppet 5-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. Pilot valve and main valve in the same body.
6. Internal or external pilot operation.
7. Air only return
8. Valve width: 18 mm.



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-P02A-AACA-RxxP-xxx	MV-P02A-ABCA-RxxP-xxx	MV-P02A-AECA-RxxP-xxx	MV-P02A-AFCA-RxxP-xxx
External "12" end	MV-P02A-AACD-RxxP-xxx	MV-P02A-ABCD-RxxP-xxx	MV-P02A-AECD-RxxP-xxx	MV-P02A-AFCD-RxxP-xxx
External "14" end	MV-P02A-AACE-RxxP-xxx	MV-P02A-ABCE-RxxP-xxx	MV-P02A-AECE-RxxP-xxx	MV-P02A-AFCE-RxxP-xxx

DUAL PRESSURE MODELS

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
Internal from port #3	MV-P02A-ACCB-RxxP-xxx	MV-P02A-ADCB-RxxP-xxx	MV-P02A-AHCB-RxxP-xxx
Internal from port #5	MV-P02A-ACCC-RxxP-xxx	MV-P02A-ADCC-RxxP-xxx	MV-P02A-AHCC-RxxP-xxx
External from "12" end	MV-P02A-ACCD-RxxP-xxx	MV-P02A-ADCD-RxxP-xxx	MV-P02A-AHCD-RxxP-xxx
External from "14" end	MV-P02A-ACCCE-RxxP-xxx	MV-P02A-ADCE-RxxP-xxx	MV-P02A-AHCE-RxxP-xxx

SOLENOID OPERATOR ➤

R **xxP-xxx** **

XX Voltage	X Manual operator	XX Electrical connection
AA* 120 VAC	0 Non operator	PA Base plug-in
AC* 24 VAC	1 Recessed non locking	PB Base plug-in with light
DC 24V=/1.8W	3 Extended non locking	PC Base plug-in with MOV
DD 24V=/2.5W		PD Base plug-in with light & MOV
DE 24V=/3.0W		
DF 24V=/4.0W		
DJ 12V=/1.8W		
DK 12V=/2.5W		
DL 12V=/3.0W		
DM 12V=/4.0W		

* Use either PA or PB connector
Note: ISO series, valve and base are ordered separately, see page for base codes.

** Other options available, see page options.

OPTIONS

Pilot exhaust: MV-P02A-XXxMVx-RxxP-xxx

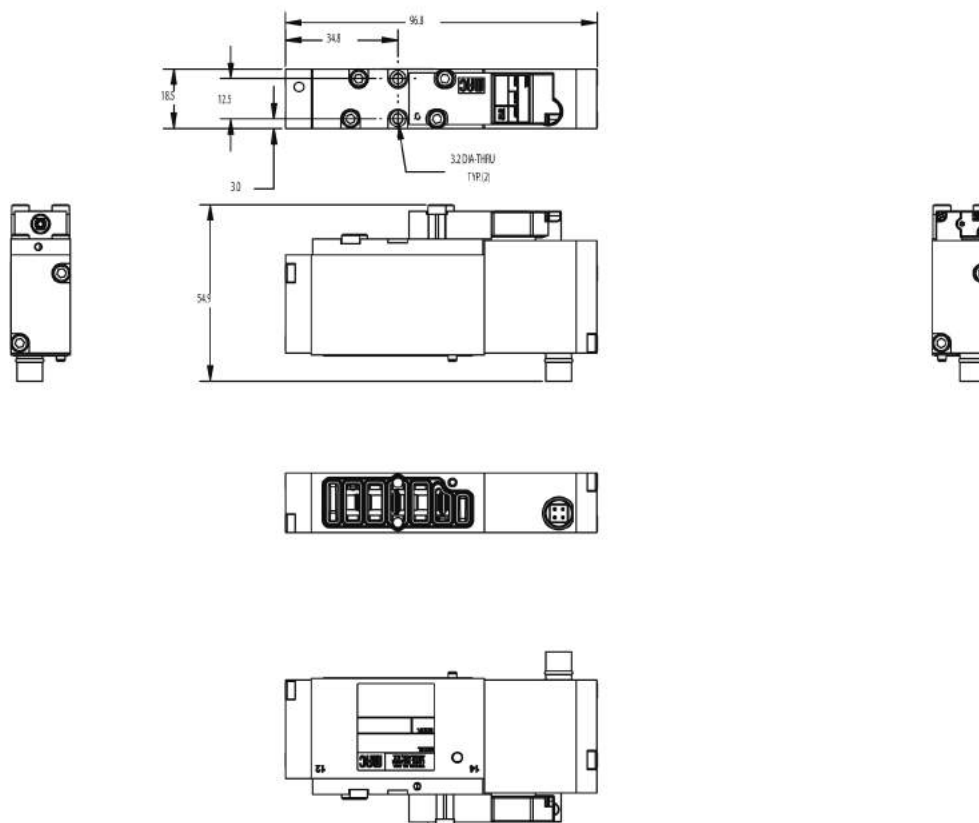
- C Pilot exhaust muffled
- R Pilot exhaust piped M5
- U Pilot exhaust out main exhaust

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 pos.: 1,3 to 8 bar – 3 pos.: 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
Flow (at 6 bar, ΔP=1 bar) :	2 pos.: 510 NI/min (Cv .51) – 3 pos.: 350 NI/min (Cv .35)
Coil :	Epoxy encapsulated - Class A wires - 100% ED
Voltage range :	-15% to +10%
Power :	1,8 to 5,4 W

DIMENSIONS

Dimensions shown are metric (mm)



Non plug-in individual / manifold base



HOW TO ORDER

INDIVIDUAL BASE

Port size	Pilot air	Side ports	Bottom 2 & 4 ports With all side ports
G1/8"	Internal	MB-A02A-211	MB-A02A-212

MANIFOLD BASE

Port size	Pilot air	Side ports	Bottom 2 & 4 ports With side 1, 3 & 5 ports
G1/8"	Internal	MM-A02A-211	MM-A02A-212

Notes:

- For manifold bases external pilot is common
- A base is ordered as internal pilot and can be changed into external pilot by removing pipe plugs from the external pilot ports (individual base).
- Manifold base: same base for internal and external pilot, different end plate kits.

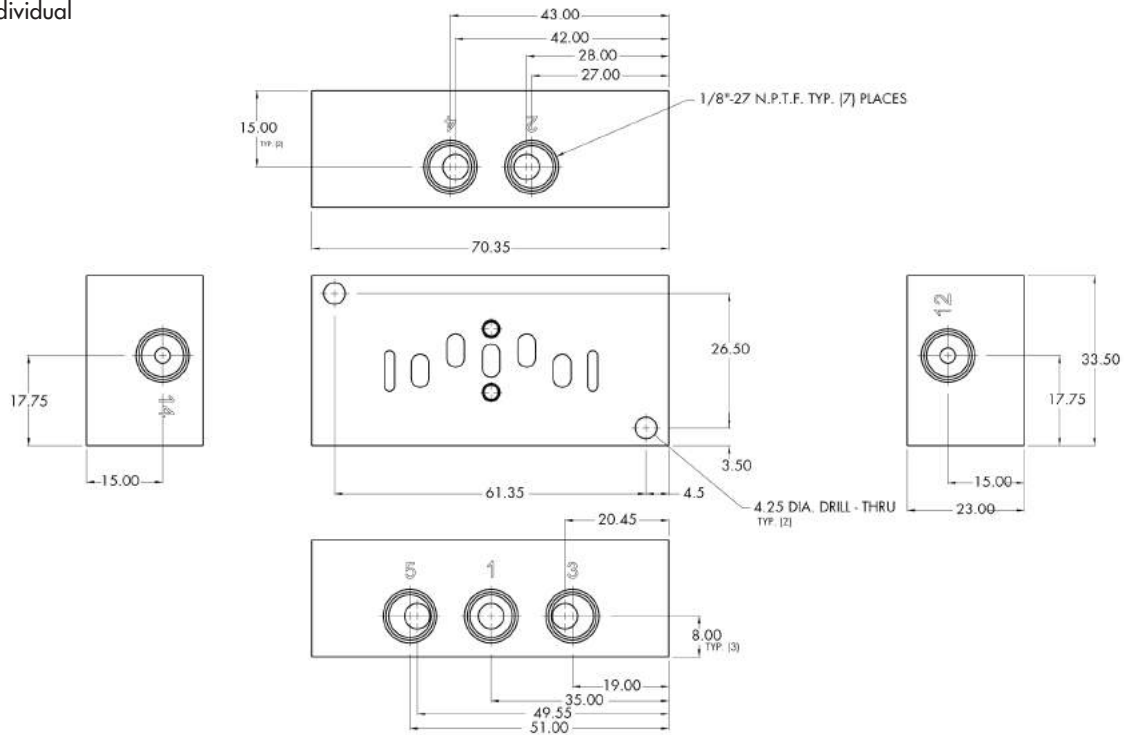
End plate kit: Internal pilot M-00018-01-01P
External pilot M-00018-02-01P

Inlet/exhaust isolator: 28499

DIMENSIONS

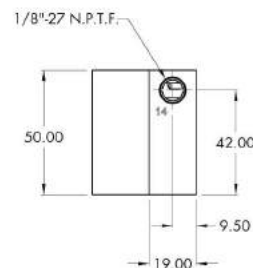
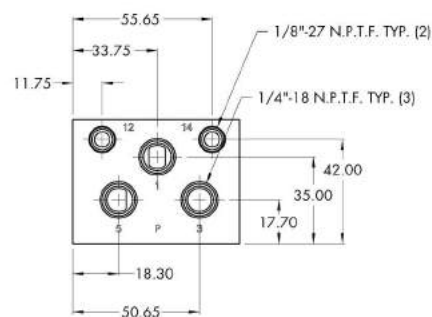
Dimensions shown are metric (mm)

Individual

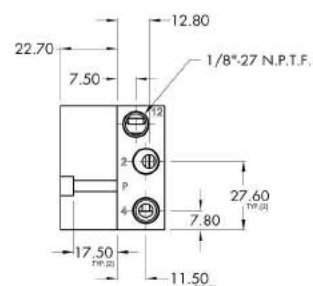
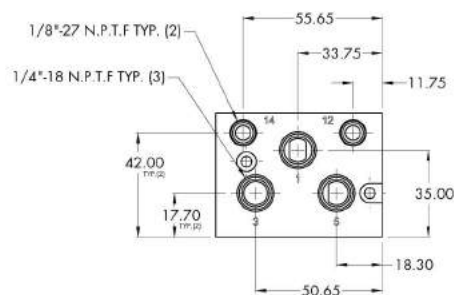


Manifold

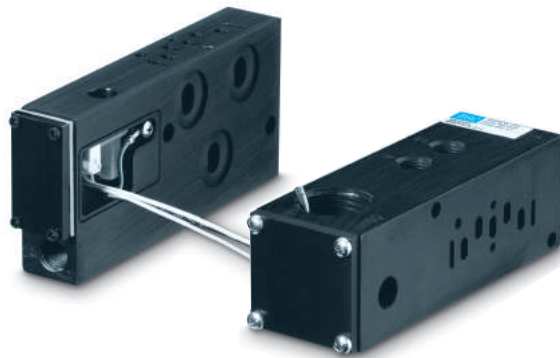
LEFT SIDE



RIGHT SIDE



Plug-in individual / manifold base



HOW TO ORDER

INDIVIDUAL BASE

Port size	Pilot air	Side ports with all side ports	Bottom 2 & 4 ports
G1/8"	Internal	MB-P02A-211	MB-P02A-212

MANIFOLD BASE

Port size	Pilot air	Side ports With side 1, 3 & 5 ports	Bottom 2 & 4 ports
G1/8"	Internal	MM-P02A-211	MM-P02A-212

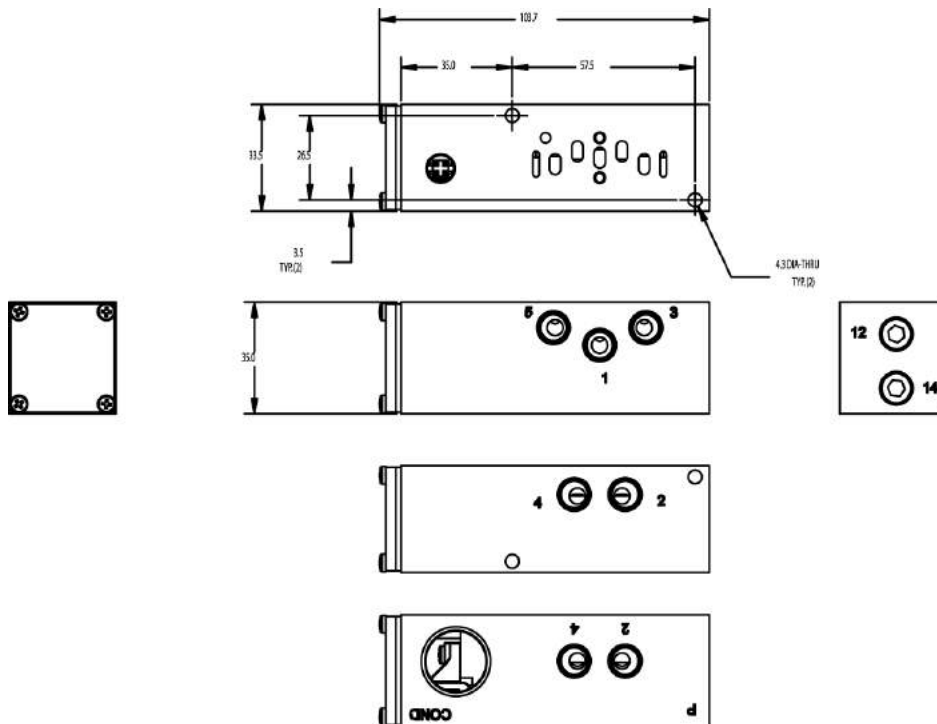
Notes:

- For manifold bases external pilot is common
- End plate kit: Internal pilot M-00021-01-01P
External pilot M-00021-02-01P

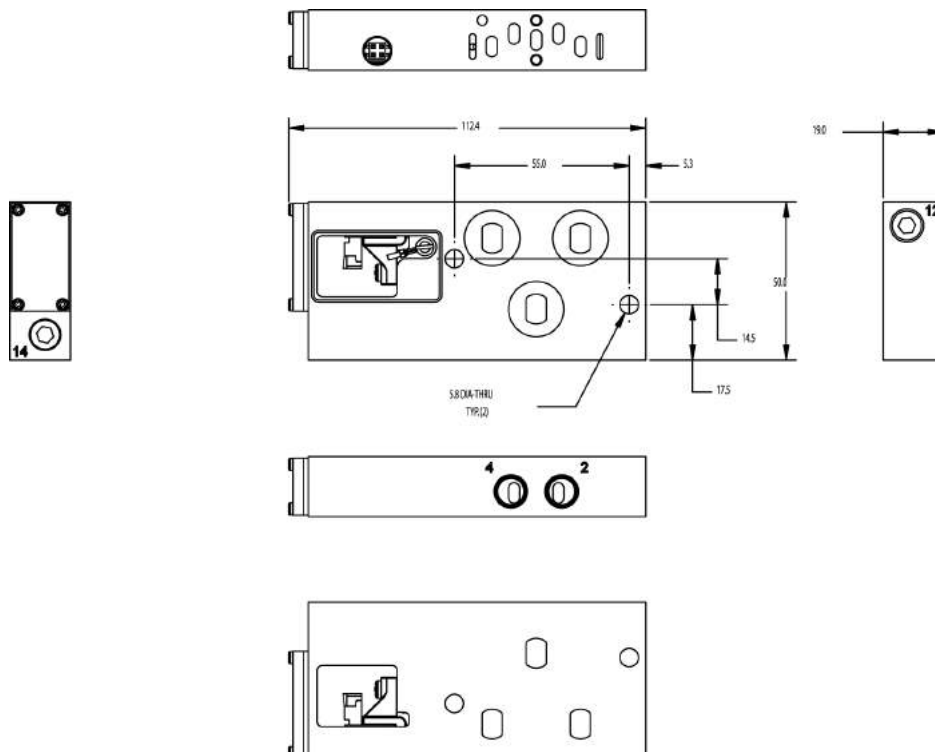
DIMENSIONS

Dimensions shown are metric (mm)

Individual



Manifold



Non plug-in sandwich pressure regulator with manual adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs and space in comparison with inline regulators
2. Compact all-included units
3. Large orifice provides high flow
4. Various functions available
5. Simple, reliable and solid design



HOW TO ORDER

Pilot	Single pressure Regulator 12 end	Dual pressure Regulator 12 end with by-pass 14 end *	Dual pressure Regulator 14 end with by-pass 12 end *	Dual pressure Regulator both ends *
Internal	PRA02A-AAAA	PRA02A-ABAA	PRA02A-ADAA	PRA02A-AEAA
External	PRA02A-BAAA	PRA02A-BBAA	PRA02A-BDAA	PRA02A-BEAA

Above models are for manual adjust with knob
For other manual adjustments and pressure ranges, see Options.

Note: Add -9 after part number for regulator block assembled to valve.

* To be used with dual pressure valves.

OPTIONS

Adjustments :

PRA02A - xxxx

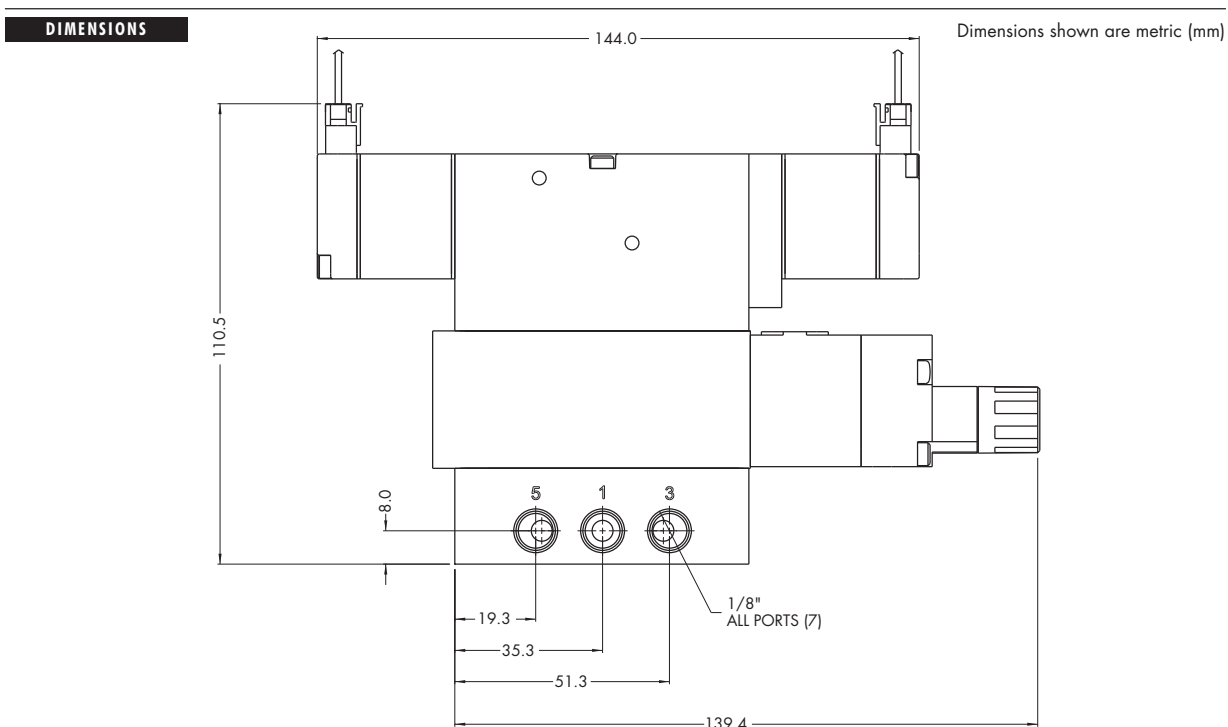
- A** Manual adjust with knob – Internal pilot
- B** Manual adjust with knob – External pilot
- G** Manual adjust with screwdriver slot – Internal pilot
- H** Manual adjust with screwdriver slot – External pilot
- K** Manual adjust with screwdriver slot with locknut – Internal pilot
- L** Manual adjust with screwdriver slot with locknut – External pilot

Regulated Pressure range :

PRA02A - xxxxx

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar
- D** 0 to 8 bar "14" end – 0 to 5,3 bar "12" end
- E** 0 to 8 bar "12" end – 0 to 5,3 bar "14" end
- F** 0 to 8 bar "14" end – 0 to 2 bar "12" end
- G** 0 to 8 bar "12" end – 0 to 2 bar "14" end
- H** 0 to 5,3 bar "14" end – 0 to 2 bar "12" end
- J** 0 to 5,3 bar "12" end – 0 to 2 bar "14" end

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure supply :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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





P r e s s u r e r e g u l a t o r s

Plug-in sandwich pressure regulator with manual adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs and space in comparison with inline regulators
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.

HOW TO ORDER

Pilot	Single pressure Regulator 1/2 end
Internal	PRP02A-AAAA
External	PRP02A-BAAA

Above models are for manual adjust with knob
For other manual adjustments and pressure ranges, see Options.

Note: Add -9 after part number for regulator block assembled to valve.

OPTIONS

Adjustments :

PRP02A - xxxx

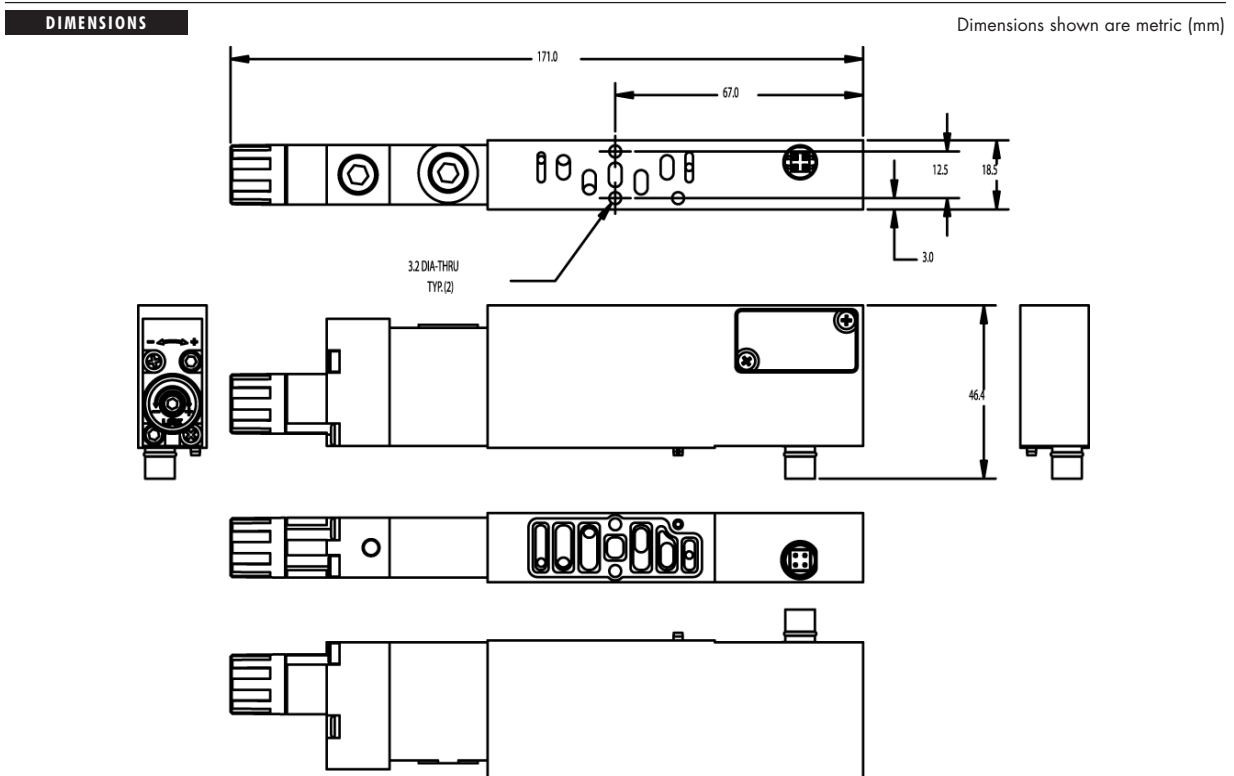
- A** Manual adjust with knob – Internal pilot
- B** Manual adjust with knob – External pilot
- G** Manual adjust with screwdriver slot – Internal pilot
- H** Manual adjust with screwdriver slot – External pilot
- K** Manual adjust with screwdriver slot with locknut– Internal pilot
- L** Manual adjust with screwdriver slot with locknut – External pilot

Regulated Pressure range :

PRP02A - xxxx

- A** 0 to 8 bar
- B** 0 to 5,3 bar
- C** 0 to 2 bar

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure supply :	Higher than maximum regulated pressure (max. 8,5 bar)
Regulating range :	0 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



Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ►

J XX X-X XX
1 2 3 4

(Non Plug-in series)

1. VOLTAGE		J-XX X-X XX	ELECTRICAL CONNECTION
J-XX X-X XX	VOLTAGE	*JJ	Square connector Male only (Plain)
AA	120V~/5,4W	*JK	Square connector with rectifier
AC	24V~/5,4W	*JL	Square connector with rectifier with light
DE	24V~/1,8W	*JM	Rectangular connector Male only (Plain)
DF	12V~/1,8W	*JN	Rectangular connector with diode
DJ	24V~/1,3W	*JP	Rectangular connector with MOV
DL	12V~/1,3W	*JR	Rectangular connector with diode/light
DN	12V~/0,5W*	*JS	Rectangular connector with MOV/light
DR	12V~/1,0W*	*JT	Rectangular connector with rectifier
DS	24V~/0,5W*	*JU	Rectangular connector with rectifier with light
DU	24V~/1,0W*	* Not available on manifold or stacking valves	
* Not available on 36 series universal valves		J-XX X-X XX	MINI SQUARE PLUG-IN CONNECTORS 9,4 MM SPACING BETWEEN PINS
2. WIRE LENGHT		KA	Mini plug-in
J-XX X-X XX	WIRE LENGHT	KB	Mini plug-in with diode
A	45 cm - 18" coil leads	KC	Mini plug-in with MOV
B	60 cm - 24" coil leads	KD	Mini plug-in with light
C	90 cm - 36" coil leads	KE	Mini plug-in with diode and light
D	120 cm - 48" coil leads	KF	Mini plug-in with MOV and light
E	180 cm - 72" coil leads	KG	Mini plug-in with rectifier
F	240 cm - 96" coil leads	KH	Mini plug-in with rectifier and light
P	Base plug-in	KJ	Mini plug-in - Male only
O	No leads (use with J, K & L type connectors)	KK	Mini plug-in with diode - Male only
3. MANUAL OPERATOR		KL	Mini plug-in with MOV - Male only
J-XX X-X XX	MANUAL OPERATOR	KM	Mini plug-in with light - Male only
0	No operator	KN	Mini plug-in with diode and light - Male only
1	Non-locking recessed	KP	Mini plug-in with MOV and light - Male only
2	Locking recessed	KR	Mini plug-in with rectifier - Male only
3	Non-locking extended	KS	Mini plug-in with rectifier and light - Male only
4	Locking extended	* Not available on manifold or stacking valves	
4. ELECTRICAL CONNECTION		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
J-XX X-X XX	ELECTRICAL CONNECTION	LA	Mini plug-in
BA	Flying leads	LB	Mini plug-in with diode
GA	MAC JAC solenoid plug-in	LC	Mini plug-in with MOV
GB	MAC JAC solenoid plug-in with diode	LD	Mini plug-in with light
GC	MAC JAC solenoid plug-in with MOV	LE	Mini plug-in with diode and light
GD	MAC JAC solenoid plug-in with light	LF	Mini plug-in with MOV and light
GE	MAC JAC solenoid plug-in with diode and light	LG	Mini plug-in with rectifier
GF	MAC JAC solenoid plug-in with MOV and light	LH	Mini plug-in with rectifier and light
GG	MAC JAC solenoid plug-in with rectifier	LJ	Mini plug-in - Male only
GH	MAC JAC solenoid plug-in with rectifier and light	LK	Mini plug-in with diode - Male only
GJ	MAC JAC solenoid plug-in - Male only	LL	Mini plug-in with MOV - Male only
GK	MAC JAC solenoid plug-in with diode - Male only	LM	Mini plug-in with light - Male only
GL	MAC JAC solenoid plug-in with MOV - Male only	LN	Mini plug-in with diode and light - Male only
GM	MAC JAC solenoid plug-in with light - Male only	LP	Mini plug-in with MOV and light - Male only
GN	MAC JAC solenoid plug-in with diode and light - Male only	LR	Mini plug-in with rectifier - Male only
GP	MAC JAC solenoid plug-in with MOV and light - Male only	LS	Mini plug-in with rectifier and light - Male only
GR	MAC JAC solenoid plug-in with rectifier - Male only	J-XX X-X XX	CONNECTORS FOR PLUG-IN VALVES
GS	MAC JAC solenoid plug-in with rectifier and light - Male only	FA	Base plug-in
*JA	Square connector	FB	Base plug-in with diode
*JB	Rectangular connector	FC	Base plug-in with MOV
*JC	Square connector with light	FD	Base plug-in with light
*JD	Rectangular connector with light	FE	Base plug-in with diode and light
*JE	Square connector with diode	FF	Base plug-in with MOV and light
*JF	Square connector with MOV	FG	Base plug-in with rectifier
*JG	Square connector with diode/light	FH	Base plug-in with rectifier and light
*JH	Square connector with MOV/light		

Codification table for voltages / Manual operators / Electrical connections

VALVE CODE ► **R XX X - X XX**
(Plug-in series) **1 2 3 4**

1. VOLTAGE		3. MANUAL OPERATOR	
R XX X - XXX	VOLTAGE	R XX X - XXX	MANUAL OPERATOR
DB	24 VDC (1.0W)	0	No operator
DC	24 VDC (1.8W)	1	Non-locking recessed
DD	24 VDC (2.5W)	3	Non-locking extended
DE	24 VDC (3.0W)		
DF	24 VDC (4.0W)		
DH	12 VDC (1.0W)		
DJ	12 VDC (1.8W)		
DK	12 VDC (2.5W)		
DL	12 VDC (3.0W)		
DM	12 VDC (4.0W)		
EA*	24 VDC (60W)		
EB*	24 VDC (90W)		
EC*	24 VDC (230W)		
* MOD numbers required for these voltages (consult factory)			
2. WIRE LENGHT		4. ELECTRICAL CONNECTION	
R XX X - XXX	WIRE LENGHT	ELECTRICAL CONNECTION FOR NON PLUG-IN VALVES	
0*	No lead wire	R XX X - XXX	
A	45 cm - 18"	BA	Flying leads
B	60 cm - 24"	BB	Flying leads with LED
C	90 cm - 36"	BC	Flying leads with MOV
D	120 cm - 48"	BD	Flying leads with LED and MOV
E	180 cm - 72"	DA	Base plug-in
F	240 cm - 96"	DB	Base plug-in with LED
G	300 cm - 120"	DC	Base plug-in with MOV
H	365 cm - 144"	DD	Base plug-in with LED and MOV
P	Base plug-in	RA	Mini JAC solenoid
* Not available for flying leads connector		RB	Mini JAC solenoid with LED
		RC	Mini JAC solenoid with MOV
		RD	Mini JAC solenoid with LED and MOV
		TA	JST solenoid plug-in
		TB	JST solenoid plug-in with LED
		TC	JST solenoid plug-in with MOV
		TD	JST solenoid plug-in with LED and MOV
		ELECTRICAL CONNECTION FOR PLUG-IN VALVES	
		R XX X - XXX	
		PA	Base plug-in
		PB	Base plug-in with light
		PC	Base plug-in with MOV
		PD	Base plug-in with light and MOV

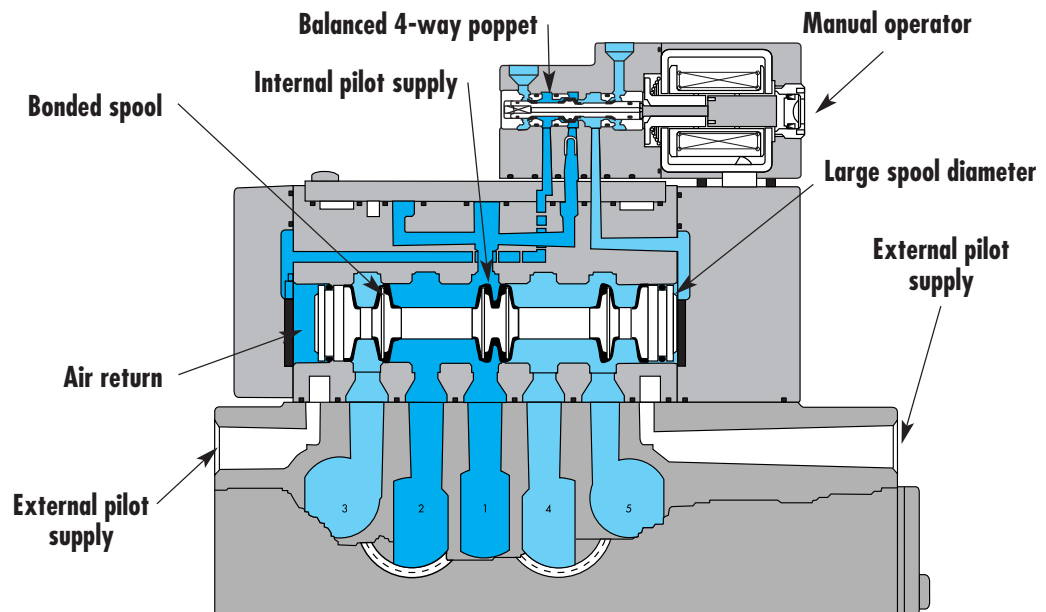
Direct solenoid and solenoid pilot operated valves

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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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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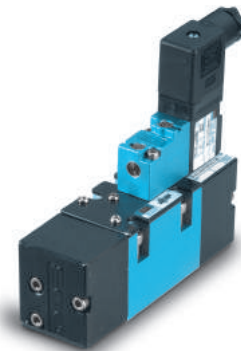
SERIES FEATURES

- 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
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.



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	5/3 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

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			

* Other options available, see page options.

Note: ISO series, valve and base are ordered separately, see page for base code.

OPTIONS

Valve function :

MV-B1A-**AXXX**-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**AX**-XX-Dxxx-xxx

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

TECHNICAL DATA

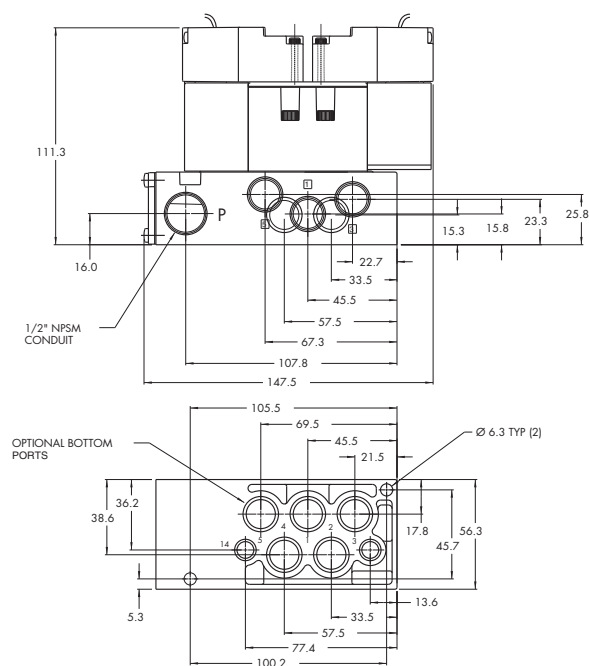
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Pilot pressure :	Single / double operator : 1,3 to 8 bar 3 positions : 2 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	7.8 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

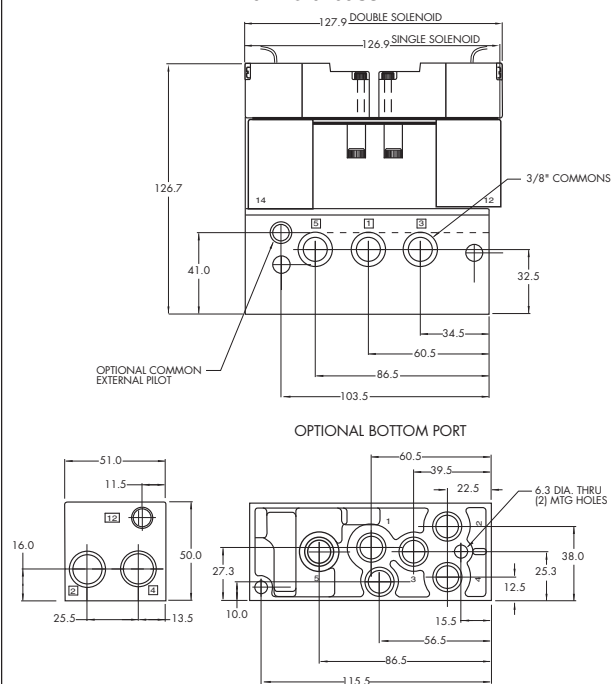
DIMENSIONS

Individual base



Dimensions shown are metric (mm)

Manifold base



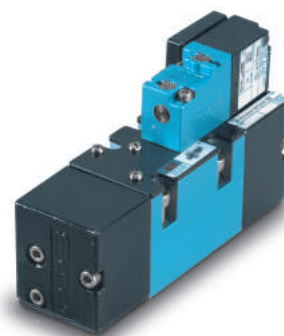
Function Port size Flow [Max] Individual/Manifold mounting

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.



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	5/3 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

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		

* Other options available, see page options.
Note: - ISO series, valve and base are ordered separately, see page for base codes.
- Ground wire required for 30 volts or higher.

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-AXXX-XX-DxxP-xxx

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

TECHNICAL DATA

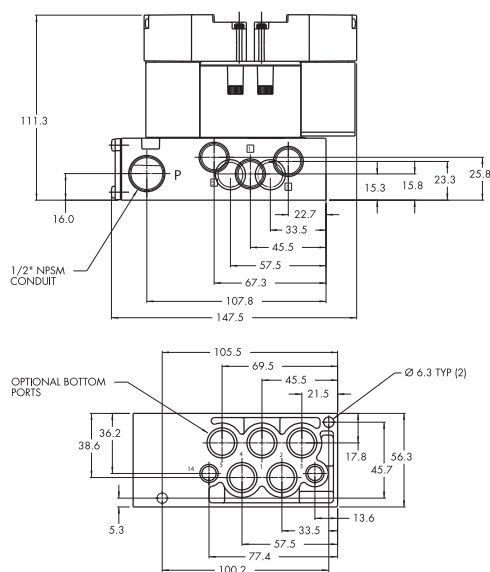
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 8 bar
Pilot pressure :	Single / double operator : 1,3 to 8 bar 3 positions : 2 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	7.8 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

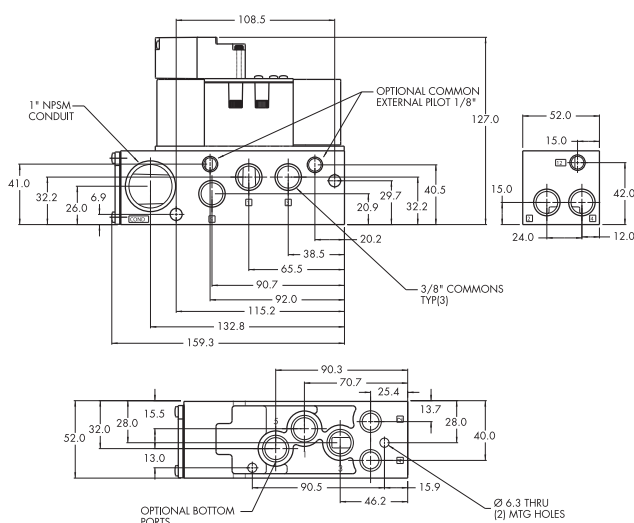
DIMENSIONS

Individual base



Dimensions shown are metric (mm)

Manifold base



Non plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G1/4"	MB-A1C-121	MB-A1C-123	MB-A1C-122	MB-A1C-124
G3/8"	MB-A1C-131	MB-A1C-133	MB-A1C-132	MB-A1C-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/4"	HB-A1A-A	HB-A1A-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G1/4"	MM-A1C-121	MM-A1C-123	MM-A1C-122	MM-A1C-124
G3/8"	MM-A1C-131	MM-A1C-133	MM-A1C-132	MM-A1C-134

Manifold fastening kit : N-63002-01.

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Side ports
G1/4"	HM-A1A-C

End plate kit: HM-A1A-D.

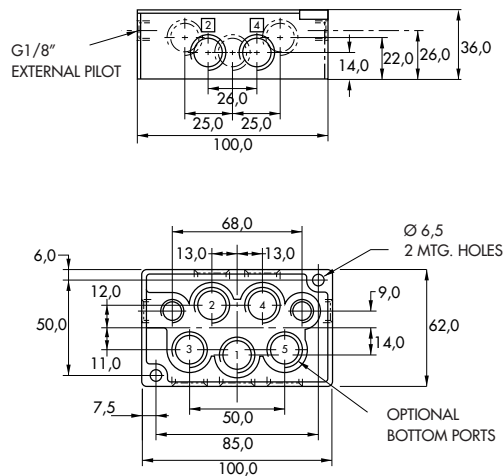
Valve blanking plate: MA1003.
Inlet/exhaust isolator plug: 32835.

DIMENSIONS

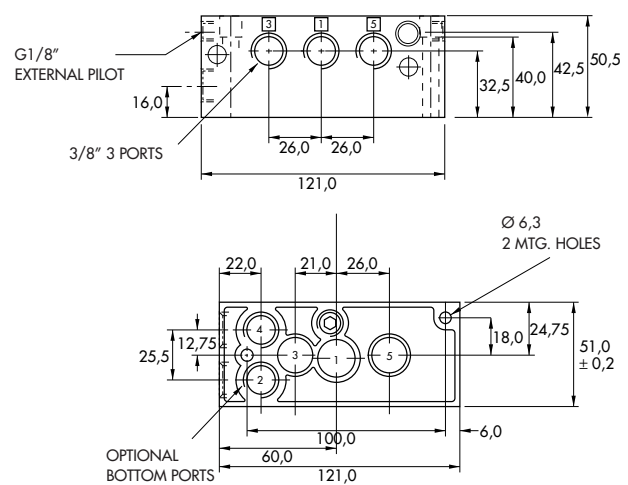
Dimensions shown are metric (mm)

Individual

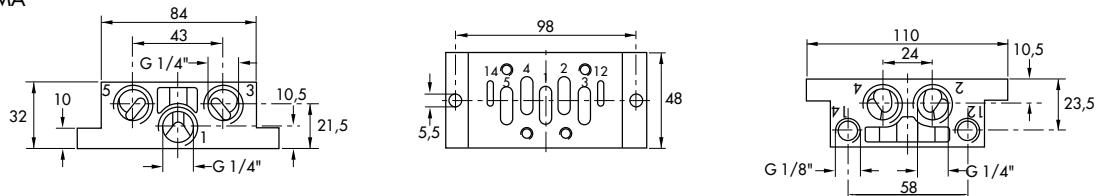
DIN 5599/1



Manifold



VDMA



Plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports
G1/4"	Single solenoid	MB-P1A-121-A	MB-P1A-122-A	MB-P1A-123-A
	Double solenoid	MB-P1A-121-B	MB-P1A-122-B	MB-P1A-123-B
G3/8"	Single solenoid	MB-P1A-131-A	MB-P1A-132-A	MB-P1A-133-A
	Double solenoid	MB-P1A-131-B	MB-P1A-132-B	MB-P1A-133-B

MANIFOLD BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports (see note)
G1/4"	Single solenoid	MM-P1A-121-A	MM-P1A-122-A	MM-P1A-123-A
	Double solenoid	MM-P1A-121-B	MM-P1A-122-B	MM-P1A-123-B
G3/8"	Single solenoid	MM-P1A-131-A	MM-P1A-132-A	MM-P1A-133-A
	Double solenoid	MM-P1A-131-B	MM-P1A-132-B	MM-P1A-133-B

Note : Ports 1,3, and 5 are always 3/8".

OPTIONS

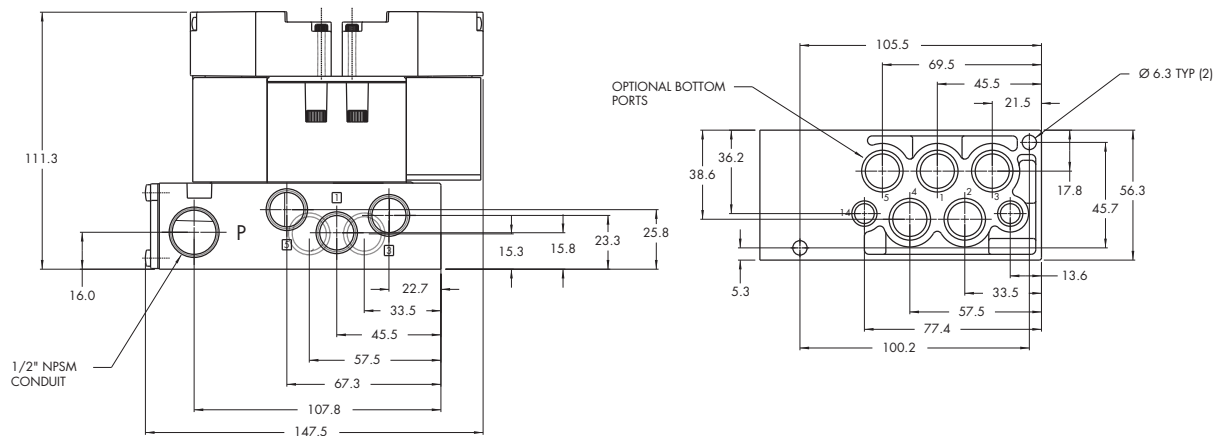
Manifold options :	External pilot	MM-P1A-12x-xx	32 for 1/4" port – common external pilot 33 for 3/8" port – common external pilot
	Terminal strip	MM-P1A-xxx-A (N/A with light)	J wired for sgl solenoid K wired for double solenoid
Base / Manifold option: light(s)		MX-P1A-xxx-xJA	JA 110/120 volt JB 220/240 volt DA 24 volt

Accessories: M-P1001 Valve blanking plate.
N-P1007-01 Manifold fastening kit.
32835 Inlet/exhaust isolator plug.

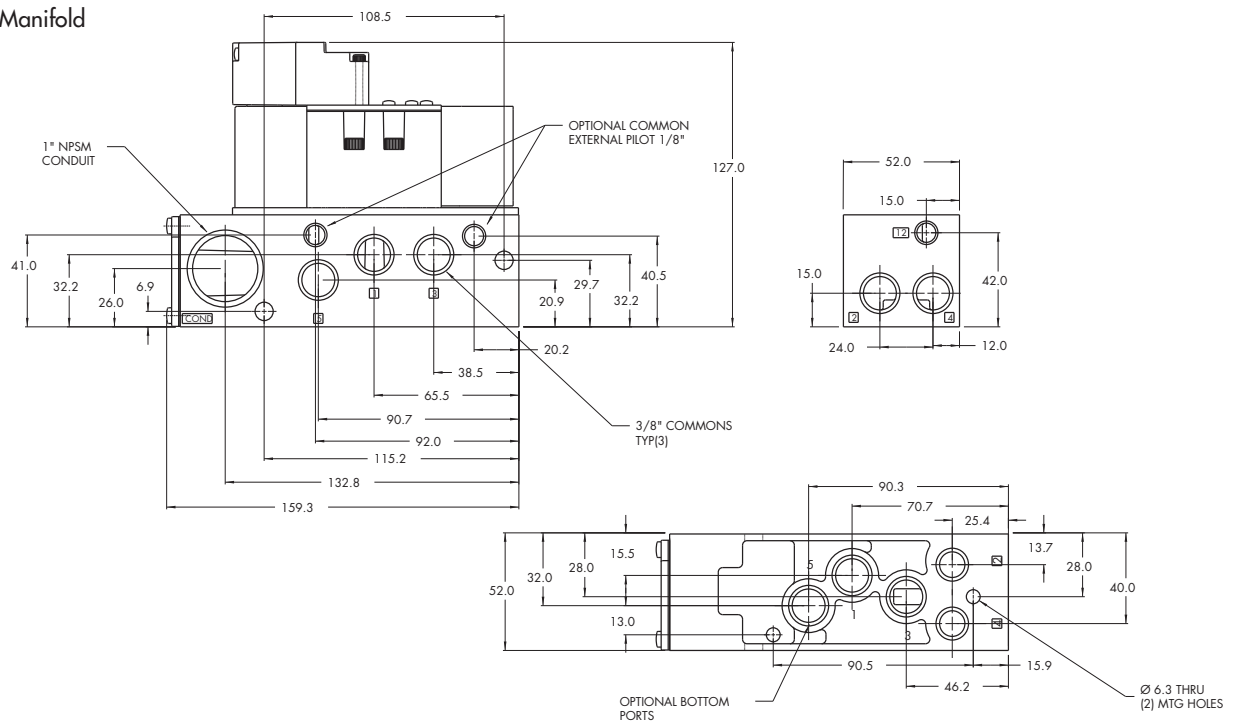
DIMENSIONS

Dimensions shown are metric (mm)

Individual



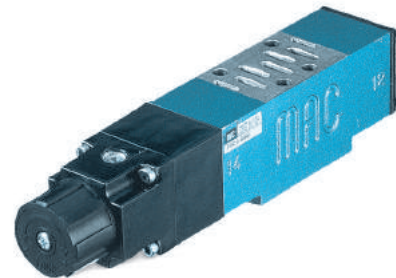
Manifold



Non plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-GAAA	PRA1A-GCAA	PRA1A-GBAA	PRA1A-GDAA	PRA1A-GEAA
Gauge perpendicular to regulator(s)	PRA1A-GABA	PRA1A-GCBA	PRA1A-GBBA	PRA1A-GDBA	PRA1A-GECA
Gauge parallel to regulator(s)	PRA1A-GADA	PRA1A-GCDA	PRA1A-GBDA	PRA1A-GDDA	PRA1A-GEEA

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-HAAA	PRA1A-HCAA	PRA1A-HBAA	PRA1A-HDAA	PRA1A-HEAA
Gauge perpendicular to regulator(s)	PRA1A-HABA	PRA1A-HCBA	PRA1A-HBBA	PRA1A-HDBA	PRA1A-HECA
Gauge parallel to regulator(s)	PRA1A-HADA	PRA1A-HCDA	PRA1A-HBDA	PRA1A-HDDA	PRA1A-HEEA

* - To be used with dual pressure valves.

Note : regulating range for above models is 0-8 bar. For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

ADJUSTMENT OPTIONS

PRA1A-xxxx

- A** for slotted stem adjustment (internal pilot)
- B** for slotted stem adjustment (external/remote air)
- K** for slotted stem with locknut (internal pilot)
- L** for slotted stem with locknut (external/remote air)

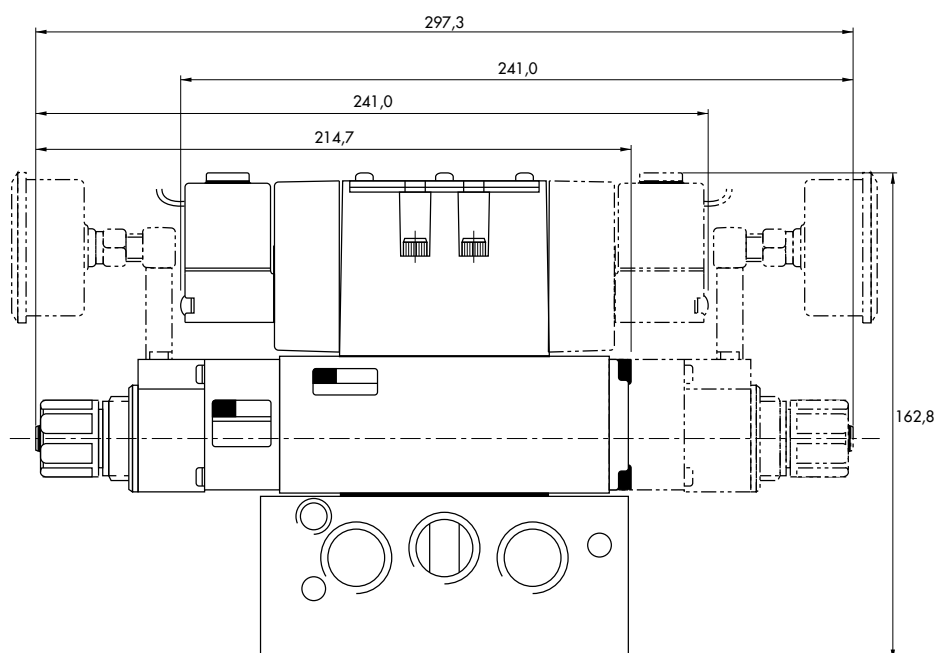
TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	1000 Nl/min (Cv 1.0)

- Spare parts :
- Pressure regulator (less sandwich block) : PRA1A-JOAA (KNOB), PRA1A-COAA (SLOTTED STEM), PRA1A-MOAA (SLOTTED STEM WITH LOCKNUT).
 - Gauge : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)
N-82016-03 (0-5,3 bar perpendicular)
N-82016-04 (0-5,3 bar parallel)
N-82016-05 (0-2 bar perpendicular)
N-82016-06 (0-2 bar parallel)

Regulating range options : PRA1A-XXXXA

- | | |
|--------------|---|
| Replace by B | - 0 to 5,3 bar |
| Replace by C | - 0 to 2 bar |
| Replace by D | - 0 to 8 bar on "14" end - 0 to 5,3 bar on "12" end |
| Replace by E | - 0 to 8 bar on "12" end - 0 to 5,3 bar on "14" end |
| Replace by F | - 0 to 8 bar on "14" end - 0 to 2 bar on "12" end |
| Replace by G | - 0 to 8 bar on "12" end - 0 to 2 bar on "14" end |
| Replace by H | - 0 to 5,3 bar on "14" end - 0 to 2 bar on "12" end |
| Replace by J | - 0 to 5,3 bar on "12" end - 0 to 2 bar on "14" end |

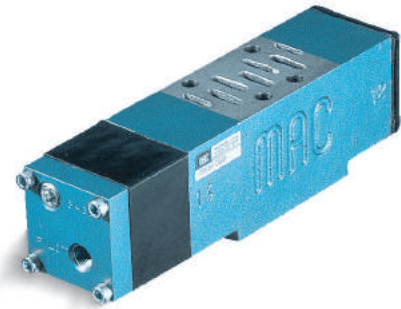
DIMENSIONS Dimensions shown are metric (mm)



Non plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-DAAA	PRA1A-DCAA	PRA1A-DBAA	PRA1A-DDAA	PRA1A-DEAA
Gauge perpendicular to regulator(s)	PRA1A-DABA	PRA1A-DCBA	PRA1A-DBBA	PRA1A-DDBA	PRA1A-DECA
Gauge parallel to regulator(s)	PRA1A-DADA	PRA1A-DCDA	PRA1A-DBDA	PRA1A-DDDA	PRA1A-DEEA

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA1A-EAAA	PRA1A-ECAA	PRA1A-EBAA	PRA1A-EDAA	PRA1A-EEAA
Gauge perpendicular to regulator(s)	PRA1A-EABA	PRA1A-ECBA	PRA1A-EBBA	PRA1A-EDBA	PRA1A-EECA
Gauge parallel to regulator(s)	PRA1A-EADA	PRA1A-ECDA	PRA1A-EBDA	PRA1A-EDDA	PRA1A-EEEA

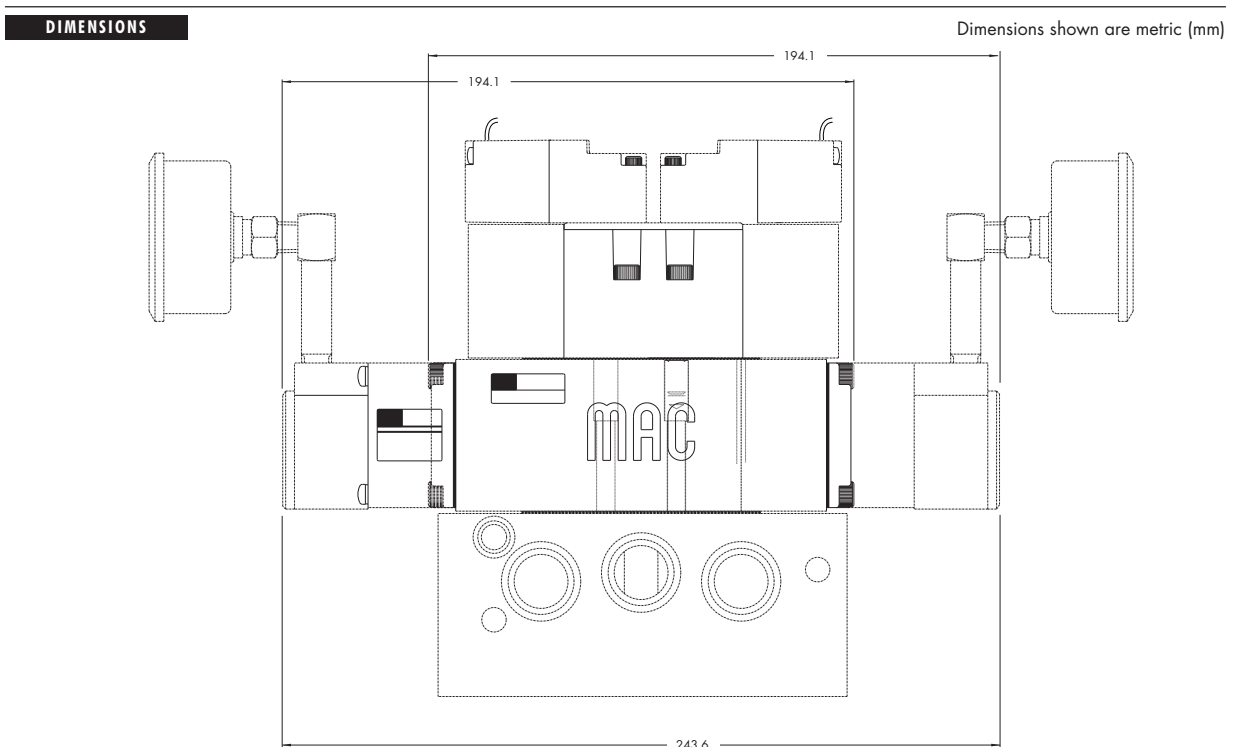
* - To be used with dual pressure valves.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	1000 NI/min (Cv 1.0)

Spare parts :

- Pressure regulator (less sandwich block) : PRA1A-F0AA.
- Gauge : N-82016-01 (0-8 bar perpendicular)
N-82016-02 (0-8 bar parallel)



Plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
Gauge port only	PRP1A-GAKA	PRP1A-GCKA	PRP1A-GBKA	PRP1A-GDKA	PRP1A-GEKA
Gauge perpendicular to manual operator	PRP1A-GABA	PRP1A-GCBA	PRP1A-GBBA	PRP1A-GDBA	PRP1A-GECA
Gauge parallel to manual operator	PRP1A-GADA	PRP1A-GCDA	PRP1A-GBDA	PRP1A-GDDA	PRP1A-GEEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP1A-HAKA	PRP1A-HCKA	PRP1A-HBKA	PRP1A-HDKA	PRP1A-HEKA
Gauge perpendicular to manual operator	PRP1A-HABA	PRP1A-HCBA	PRP1A-HBBA	PRP1A-HDBA	PRP1A-HECA
Gauge parallel to manual operator	PRP1A-HADA	PRP1A-HCDA	PRP1A-HBDA	PRP1A-HDDA	PRP1A-HEEA

* For use with dual pressure valves.

Note: Regulating range for above models is 0-8 bar. For other ranges, see technical data page.

ADJUSTMENT OPTIONS

PRP1A-XXXX

- A** for slotted stem adjustment (internal pilot)
- B** for slotted stem adjustment (external/remote air)
- K** for slotted stem with locknut (internal pilot)
- L** for slotted stem with locknut (external/remote air)

Notes:

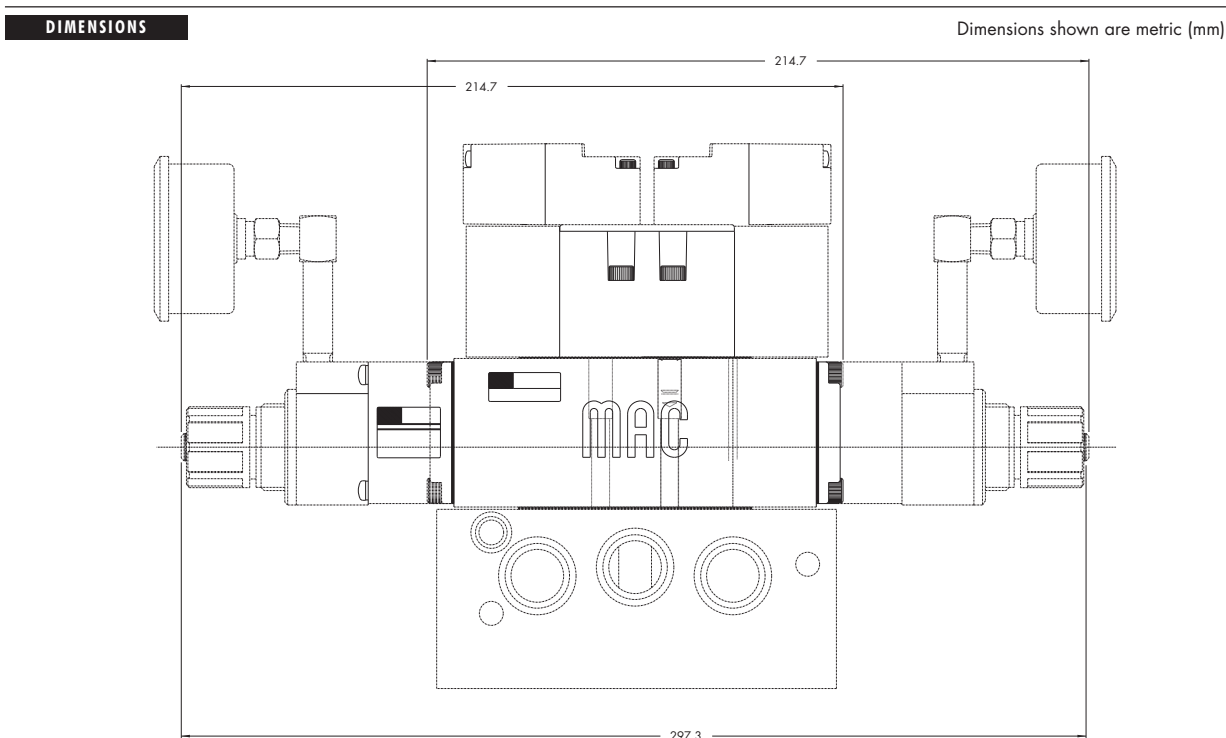
1. Valves used with above models must be external pilot models.
2. Cannot field convert regulator block from single pressure to dual pressure.
3. Cannot field convert from internal pilot to external pilot.
4. Wired for double solenoid valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	1100 Nl/min (Cv 1.1)

Spare parts : • Pressure regulator (less sandwich block) : PRP1A-JOKA (knob), PRP1A-COKA (slotted stem)
PRP1A-MOKA (slotted stem with locknut)

Regulating range options : PRP1A-XXXX

Replace by B	- 0 to 5,3 bar
Replace by C	- 0 to 2 bar
Replace by D	- 0 to 8 bar on "14" end - 0 to 5,3 bar on "12" end
Replace by E	- 0 to 8 bar on "12" end - 0 to 5,3 bar on "14" end
Replace by F	- 0 to 8 bar on "14" end - 0 to 2 bar on "12" end
Replace by G	- 0 to 8 bar on "12" end - 0 to 2 bar on "14" end
Replace by H	- 0 to 5,3 bar on "14" end - 0 to 2 bar on "12" end
Replace by J	- 0 to 5,3 bar on "12" end - 0 to 2 bar on "14" end



Plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
Gauge port only	PRP1A-DAKA	PRP1A-DCKA	PRP1A-DBKA	PRP1A-DDKA	PRP1A-DEKA
Gauge perpendicular to manual operator	PRP1A-DABA	PRP1A-DCBA	PRP1A-DBBA	PRP1A-DDBA	PRP1A-DECA
Gauge parallel to manual operator	PRP1A-DADA	PRP1A-DCDA	PRP1A-DBDA	PRP1A-DDDA	PRP1A-DEEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
Gauge port only	PRP1A-EAKA	PRP1A-ECKA	PRP1A-EBKA	PRP1A-EDKA	PRP1A-EEKA
Gauge perpendicular to manual operator	PRP1A-EABA	PRP1A-ECBA	PRP1A-EBBA	PRP1A-EDBA	PRP1A-EECA
Gauge parallel to manual operator	PRP1A-EADA	PRP1A-ECDA	PRP1A-EBDA	PRP1A-EDDA	PRP1A-EEEA

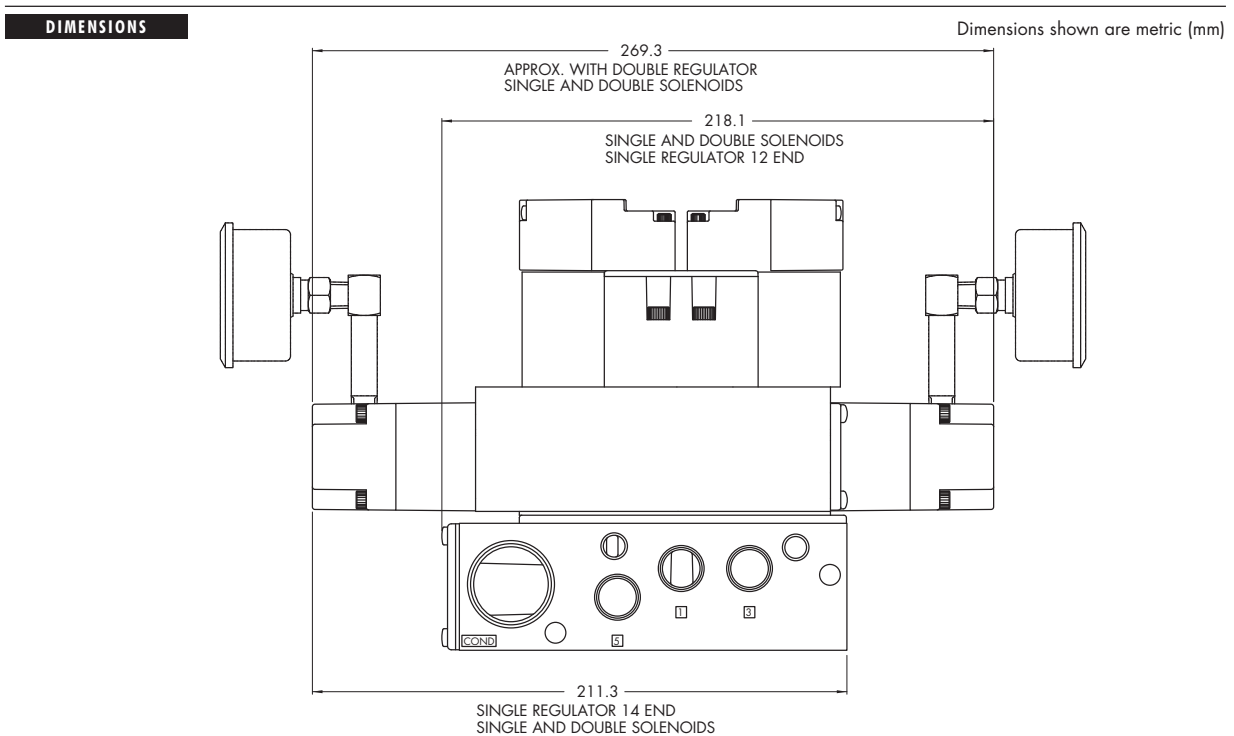
* - To be used with dual pressure valves.

Notes:

1. Valves used with above models must be external pilot models.
2. Cannot field convert regulator block from single pressure to dual pressure.
3. Cannot field convert from internal pilot to external pilot.
4. Wired for double solenoid valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	1100 NI/min (Cv 1.1)

- Spare parts :
- Pressure regulator (less sandwich block): PRP1A-FOKA
 - Regulator block to base mounting tie rod: 19496



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		

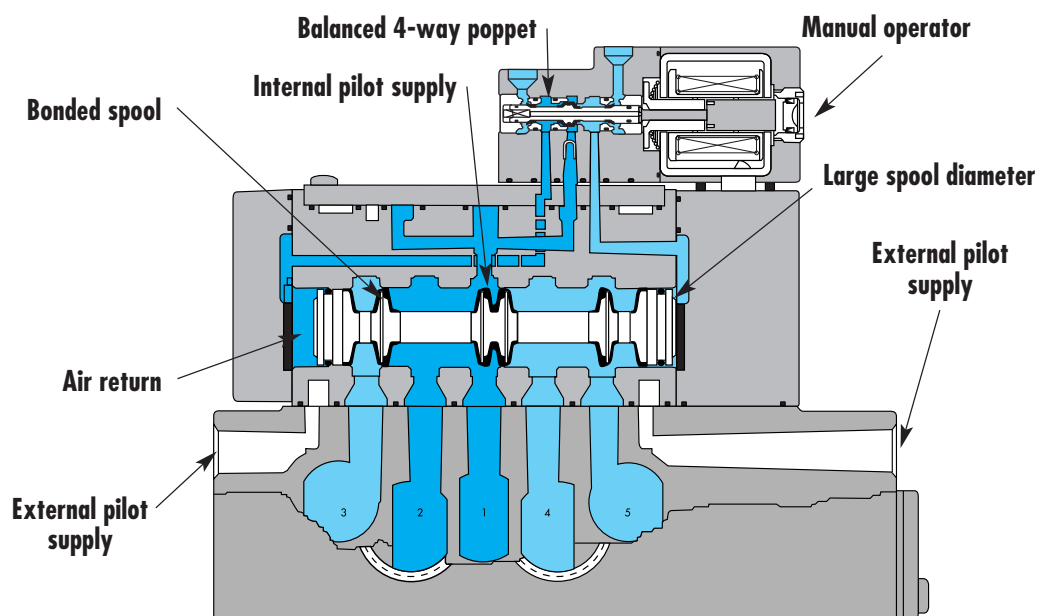
Direct solenoid and solenoid pilot operated valves

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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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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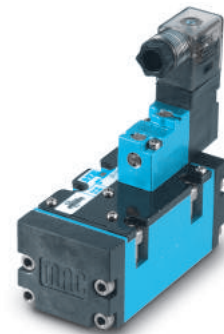
SERIES FEATURES

- 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
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.



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	5/3 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

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			

* Other options available, see page options.

Note: ISO series, valve and base are ordered separately, see page for base code.

OPTIONS

Valve function :

MV-B2A-**AXXX**-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**-Dxxx-xxx

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

Spool return :

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

- A** Standard return
B Memory spring return

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 :	Single operator and 3 positions : 1,3 to 8 bar double operator : 2 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 :	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 :

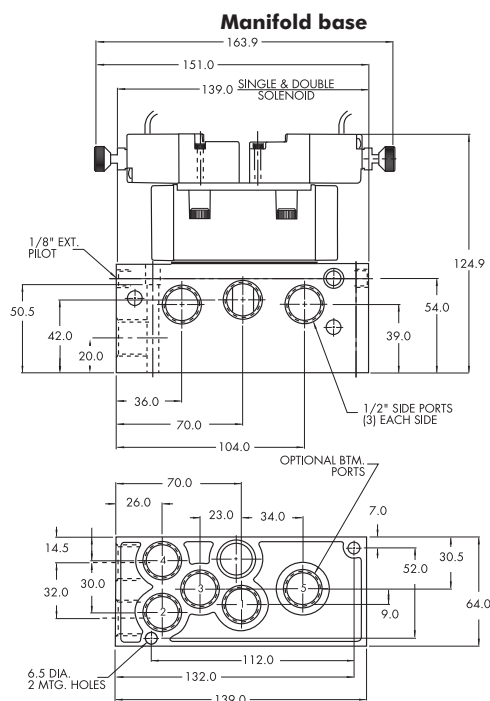
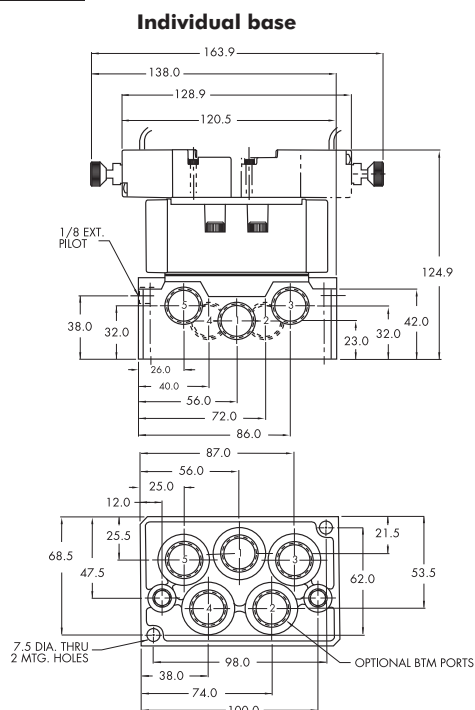
- Sandwich flow controls: FCP2A-BA (screwdriver slot adjustment)
FCP2A-BB (locking knob adjustment)
- Sandwich regulator, see 'Regulators' section

Spare parts :

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

DIMENSIONS

Dimensions shown are metric (mm)



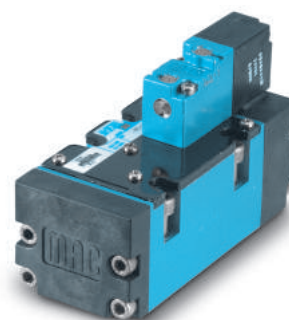
Function Port size Flow [Max] Individual/Manifold mounting

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.



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	5/3 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

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		

* Other options available, see page options.
Note: - ISO series, valve and base are ordered separately, see page for base codes.
- Ground wire required for 30 volts or higher.

OPTIONS

Valve function :

MV-P2A-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-P2A-AXXX-DM-DxxP-xxx

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

Spool return :

MV-P2A-AXXX-XX-DxxP-xxx

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

TECHNICAL DATA

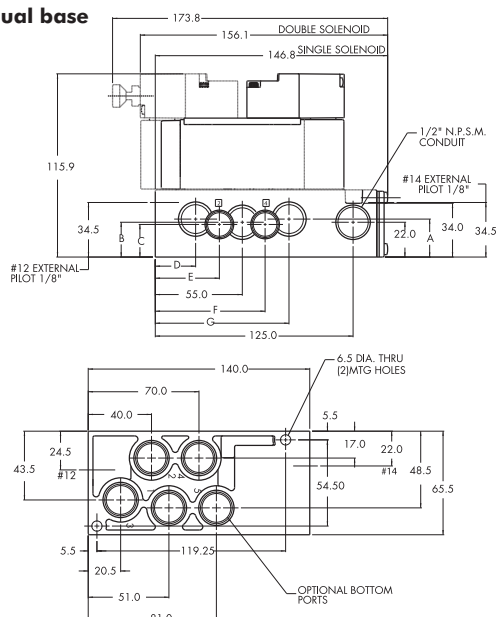
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Internal pilot: 1,3 to 8 bar External pilot : vacuum to 8 bar
Pilot pressure :	Single operator and 3 positions : 1,3 to 8 bar double operator : 2 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	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 14,8 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-AA (screwdriver slot adjustment)
FCP2A-AB (locking knob adjustment)
 - Sandwich regulator, see 'Regulators' section

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

DIMENSIONS

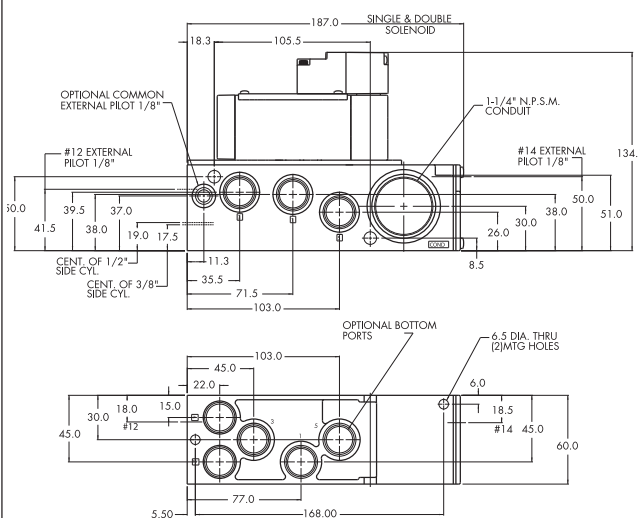
Individual base



DIM.	A	B	C	D	E	F	G
G3/8"	25.2	22.7	20.6	26.7	40.5	69.4	83.3
G1/2"	24.0	21.0	19.0	25.5	40.0	70.0	84.5

Manifold base

Dimensions shown are metric (mm)





Remote air valves

Function	Port size	Flow [Max]	Individual/Manifold mounting
5/2 - 5/3	G3/8" - G1/2"	3100 NI/min	Valve only no base

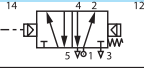
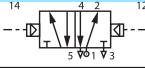
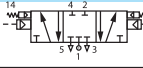
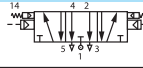
OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Powerful return forces thanks to the combination of mechanical and air springs.
3. Bonded spool with minimum friction, shifting in a glass-like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.

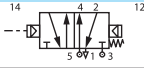
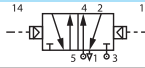
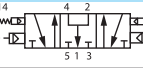
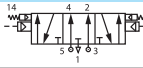


HOW TO ORDER

SINGLE PRESSURE MODELS

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
				
Internal	MV-R2A-BACF	MV-R2A-BBAK	MV-R2A-BEAK	MV-R2A-BFAK
External	MV-R2A-BACG			

DUAL PRESSURE MODELS

Air spring	5/2 Single operator	5/2 Double operator	5/3 Open centre	5/3 Pressure centre
				
Internal port #3	MV-R2A-BCCH	MV-R2A-BDAK	MV-R2A-BHAK	MV-R2A-BGAK
Internal port #5	MV-R2A-BCCJ			
External	MV-R2A-BCCG			

Note: ISO series, valve and base are ordered separately, see page for base code.

TECHNICAL DATA

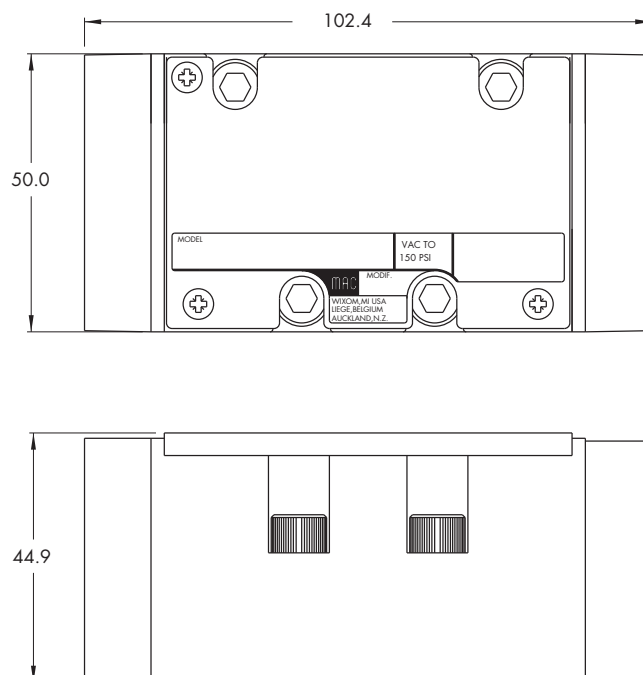
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single/double operator: 1,3 to 10 bar 3 position: 2 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Orifice :	10,6 mm
Flow (at 6 bar, ΔP=1bar) :	G3/8": 2800 NI/min – G1/2" : 3100 NI/min (Cv 3,1)

Spare parts :

- Valve to base pressure seal: 16576 • Valve mounting screws (x4): 35413

DIMENSIONS

Dimensions shown are metric (mm)



Non plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G3/8"	MB-A2B-121	MB-A2B-123	MB-A2B-122	MB-A2B-124
G1/2"	MB-A2B-131	MB-A2B-133	MB-A2B-132	MB-A2B-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G3/8"	HB-A2B-A	HB-A2B-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G3/8"	MM-A2B-121	MM-A2B-123	MM-A2B-122	MM-A2B-124
G1/2"	MM-A2B-131	MM-A2B-133	MM-A2B-132	MM-A2B-134

Manifold fastening kit : N-63002-01.

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Side ports
G3/8"	HM-A2B-C

End plate kit: HM-A2B-D.

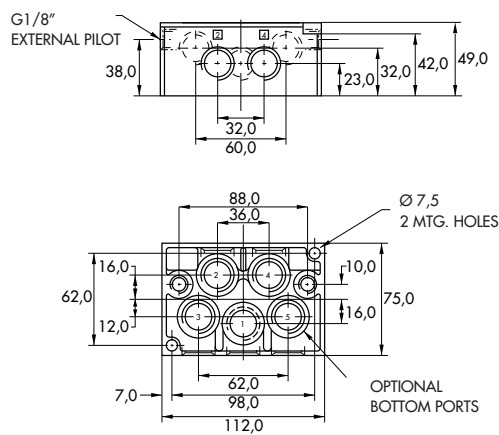
Valve blanking plate: MA2003.
Inlet/exhaust isolator plug: 32839.

DIMENSIONS

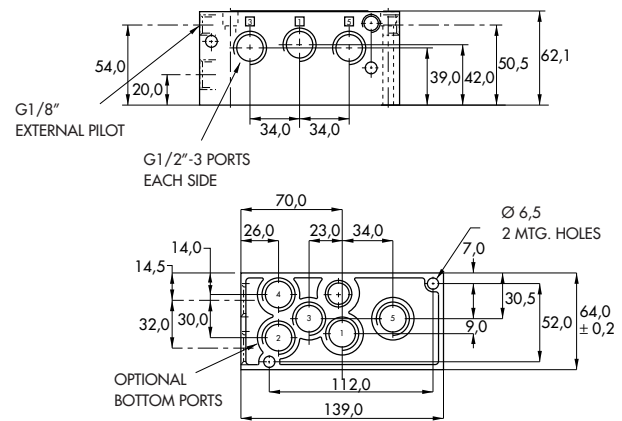
Dimensions shown are metric (mm)

Individual

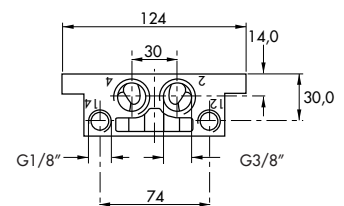
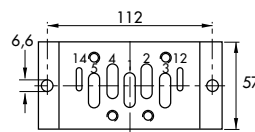
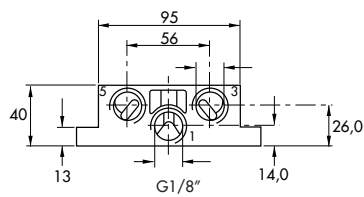
DIN 5599/1



Manifold



VDMA



Plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports
G3/8"	Single solenoid	MB-P2A-121-A	MB-P2A-122-A	MB-P2A-123-A
	Double solenoid	MB-P2A-121-B	MB-P2A-122-B	MB-P2A-123-B
G1/2"	Single solenoid	MB-P2A-131-A	MB-P2A-132-A	MB-P2A-133-A
	Double solenoid	MB-P2A-131-B	MB-P2A-132-B	MB-P2A-133-B

MANIFOLD BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports (see note)
G3/8"	Single solenoid	MM-P2A-121-A	MM-P2A-122-A	MM-P2A-123-A
	Double solenoid	MM-P2A-121-B	MM-P2A-122-B	MM-P2A-123-B
G1/2"	Single solenoid	MM-P2A-131-A	MM-P2A-132-A	MM-P2A-133-A
	Double solenoid	MM-P2A-131-B	MM-P2A-132-B	MM-P2A-133-B

Note : Ports 1,3, and 5 are always 1/2".

OPTIONS

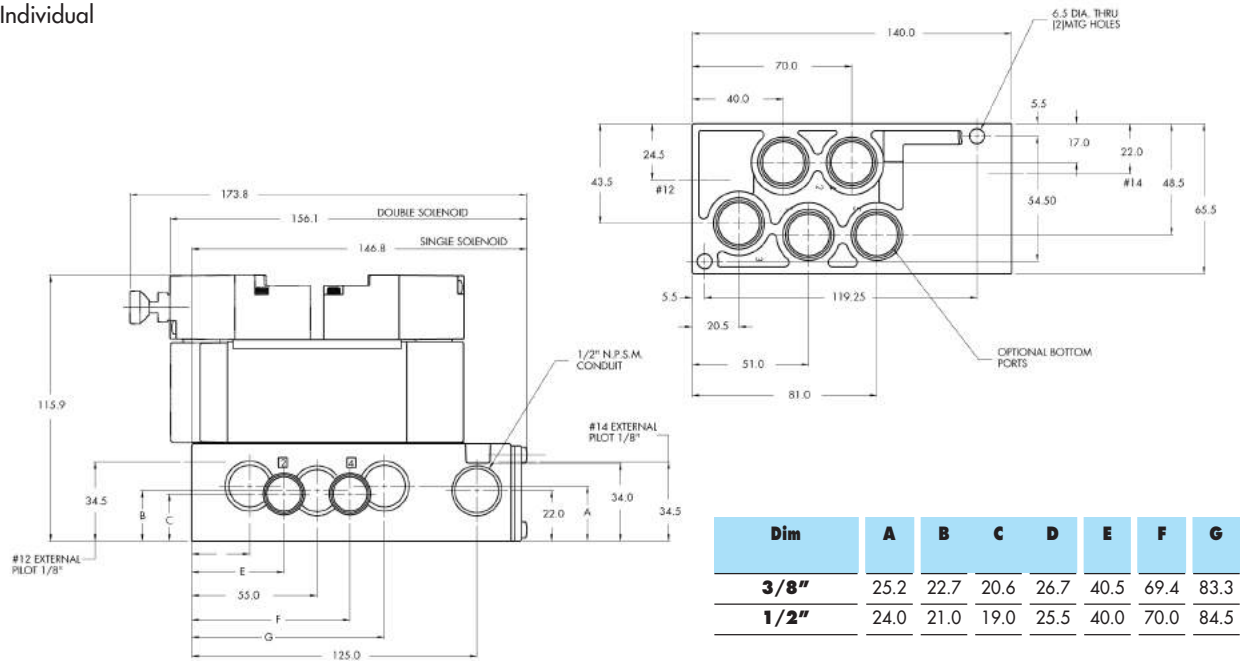
Manifold options :	External pilot	MM-P2A-12x-xx	32 for 3/8" port – common external pilot 33 for 1/2" port – common external pilot
	Terminal strip	MM-P2A-xxx-A (N/A with light)	J wired for sgl solenoid K wired for double solenoid
Base / Manifold option: light(s)		MX-P2A-xxx-xJA	JA 110/120 volt JB 220/240 volt DA 24 volt

Accessories:	M-P2001	Valve blanking plate.
	N-P2004-01	Manifold fastening kit.
	32839	Inlet/exhaust isolator plug.

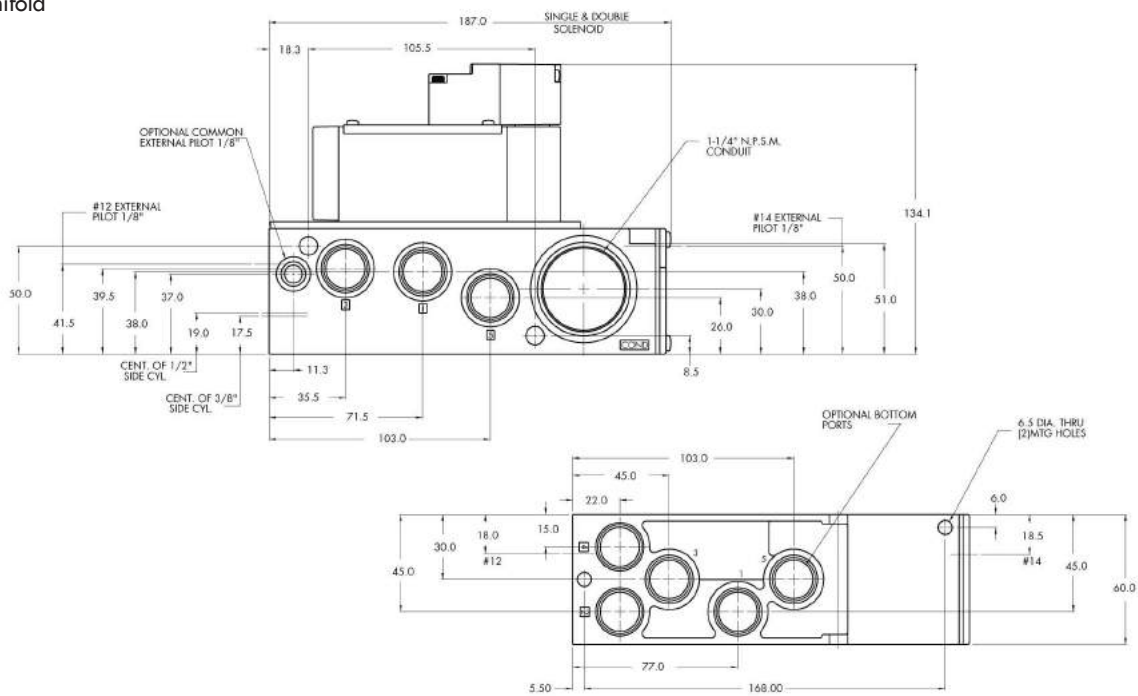
DIMENSIONS

Dimensions shown are metric (mm)

Individual



Manifold



Non plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-1AAA	PRA2D-1EAA	PRA2D-1BAA	PRA2D-1FAA	PRA2D-1JAA
Non-filled gauge on regulator(s)	PRA2D-1ADA	PRA2D-1EDA	PRA2D-1BDA	PRA2D-1FDA	PRA2D-1JEA
Non-filled gauge opposite to regulator	PRA2D-1CDA	PRA2D-1GDA	PRA2D-1DDA	PRA2D-1HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-1ABA	PRA2D-1EBA	PRA2D-1BBA	PRA2D-1FBA	PRA2D-1JCA
Glycerine filled gauge opposite to regulator	PRA2D-1CBA	PRA2D-1GBA	PRA2D-1DBA	PRA2D-1HBA	-----

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-2AAA	PRA2D-2EAA	PRA2D-2BAA	PRA2D-2FAA	PRA2D-2JAA
Non-filled gauge on regulator(s)	PRA2D-2ADA	PRA2D-2EDA	PRA2D-2BDA	PRA2D-2FDA	PRA2D-2JEA
Non-filled gauge opposite to regulator	PRA2D-2CDA	PRA2D-2GDA	PRA2D-2DDA	PRA2D-2HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-2ABA	PRA2D-2EBA	PRA2D-2BBA	PRA2D-2FBA	PRA2D-2JCA
Glycerine filled gauge opposite to regulator	PRA2D-2CBA	PRA2D-2GBA	PRA2D-2DBA	PRA2D-2HBA	-----

* - To be used with dual pressure valves.

Note : regulating range for above models is 0-10 bar.

For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

ADJUSTMENT OPTIONS

PRA2D-xxxx

- A for slotted stem adjustment (internal pilot)
- B for slotted stem adjustment (external pilot)
- D for slotted stem with locknut (internal pilot)
- E for slotted stem with locknut (external pilot)

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	2300 NI/min (Cv 2.3)

Spare parts :

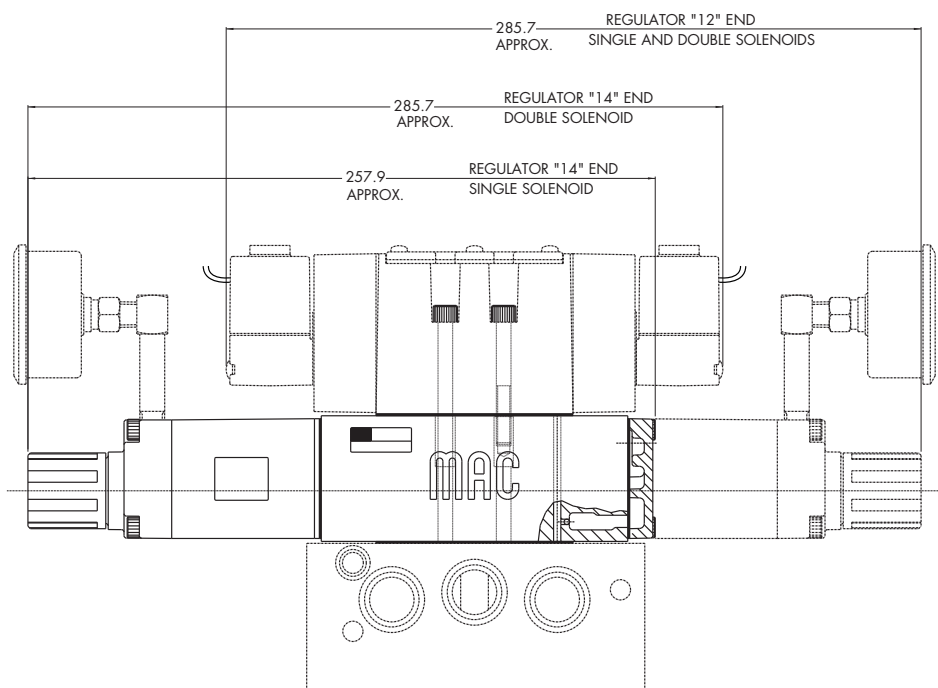
- Pressure regulator (less sandwich block) : PRA2D-30AA (KNOB), PRA2D-C0AA (SLOTTED STEM), PRA2D-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauge : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PRA2D-XXXA

Replace by B - 0 to 6,7 bar
Replace by C - 0 to 3 bar

DIMENSIONS

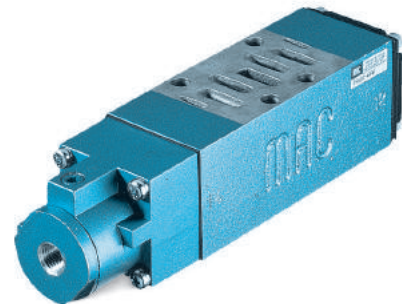
Dimensions shown are metric (mm)



Non plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-4AAA	PRA2D-4EAA	PRA2D-4BAA	PRA2D-4FAA	PRA2D-4JAA
Non-filled gauge on regulator(s)	PRA2D-4ADA	PRA2D-4EDA	PRA2D-4BDA	PRA2D-4FDA	PRA2D-4JEA
Non-filled gauge opposite to regulator	PRA2D-4CDA	PRA2D-4GDA	PRA2D-4DDA	PRA2D-4HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-4ABA	PRA2D-4EBA	PRA2D-4BBA	PRA2D-4FBA	PRA2D-4JCA
Glycerine filled gauge opposite to regulator	PRA2D-4CBA	PRA2D-4GBA	PRA2D-4DBA	PRA2D-4HBA	-----

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-5AAA	PRA2D-5EAA	PRA2D-5BAA	PRA2D-5FAA	PRA2D-5JAA
Non-filled gauge on regulator(s)	PRA2D-5ADA	PRA2D-5EDA	PRA2D-5BDA	PRA2D-5FDA	PRA2D-5JEA
Non-filled gauge opposite to regulator	PRA2D-5CDA	PRA2D-5GDA	PRA2D-5DDA	PRA2D-5HDA	-----
Glycerine filled gauge on regulator(s)	PRA2D-5ABA	PRA2D-5EBA	PRA2D-5BBA	PRA2D-5FBA	PRA2D-5JCA
Glycerine filled gauge opposite to regulator	PRA2D-5CBA	PRA2D-5GBA	PRA2D-5DBA	PRA2D-5HBA	-----

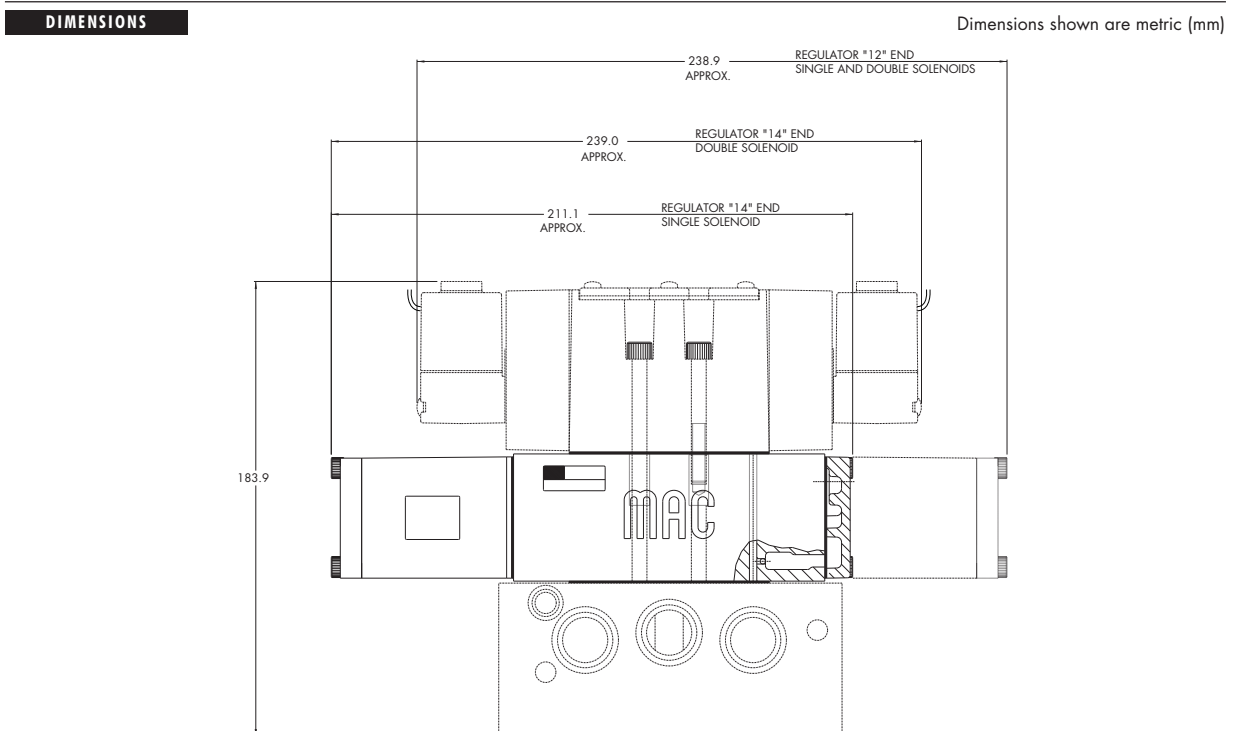
* - To be used with dual pressure valves.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	2300 NI/min (Cv 2.3)

Spare parts :

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



Plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP2B-AAAA	PRP2B-AEAA	PRP2B-ABAA	PRP2B-AFAA	PRP2B-AJAA
Glycerine gauge	PRP2B-AABA	PRP2B-AEBA	PRP2B-ABBA	PRP2B-AFBA	PRP2B-AJCA
Non-filled gauge	PRP2B-AADA	PRP2B-AEDA	PRP2B-ABDA	PRP2B-AFDA	PRP2B-AJEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP2B-BAAA	PRP2B-BEAA	PRP2B-BBAA	PRP2B-BFAA	PRP2B-BJAA
Glycerine gauge	PRP2B-BABA	PRP2B-BEBA	PRP2B-BBBA	PRP2B-BFBA	PRP2B-BJCA
Non-filled gauge	PRP2B-BADA	PRP2B-BEDA	PRP2B-BBDA	PRP2B-BFDA	PRP2B-BJEA

* For use with dual pressure valves.

Note: Regulating range for above models is 0-10 bar. For other ranges, see technical data page.

ADJUSTMENT OPTIONS

PRP2B-XXXX

- G** for slotted stem (internal pilot)
- H** for slotted stem (external pilot)
- K** for slotted stem with locknut (internal pilot)
- L** for slotted stem with locknut (external pilot)

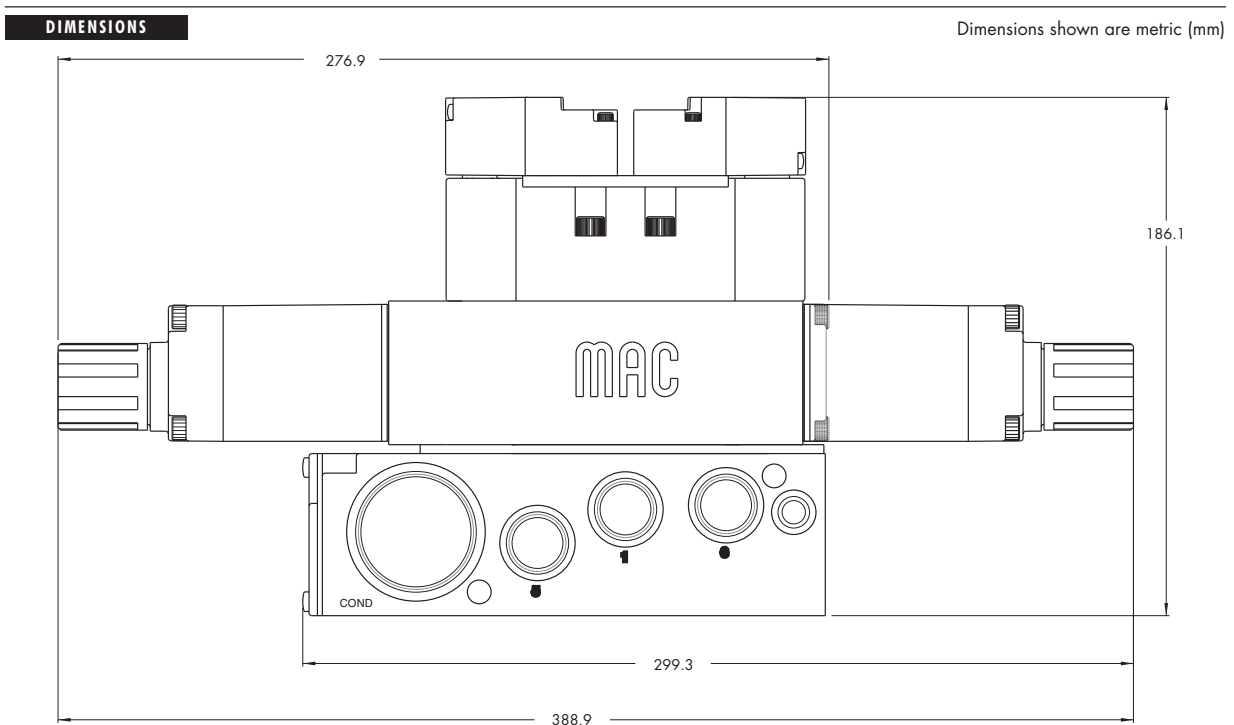
Notes:

1. Valves used with above models must be external pilot models.
2. Cannot field convert regulator block from single pressure to dual pressure.
3. Cannot field convert from internal pilot to external pilot.
4. Wired for double solenoid valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar)	3100 Nl/min (Cv 3.1)

Spare parts :

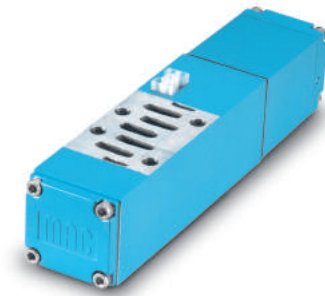
- Pressure regulator (less sandwich block) PRP2B-COAA (knob), PRP2B-JOAA (slotted stem), PRP2B-MOAA (slotted stem with locknut)
- Regulator block to base mounting screw: 19177
- Regulating range option: PRP2B-xxxA
 - Replace by B for 0 to 6,7 bar
 - Replace by C for 0 to 3 bar



Plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP2B-DAAA	PRP2B-DEAA	PRP2B-DBAA	PRP2B-DFAA	PRP2B-DJAA
Glycerine gauge	PRP2B-DABA	PRP2B-DEBA	PRP2B-DBBA	PRP2B-DFBA	PRP2B-DJCA
Non-filled gauge	PRP2B-DADA	PRP2B-DEDA	PRP2B-DBDA	PRP2B-DFDA	PRP2B-DJEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP2B-EAAA	PRP2B-EEAA	PRP2B-EBAA	PRP2B-EFAA	PRP2B-EJAA
Glycerine gauge	PRP2B-EABA	PRP2B-EEBA	PRP2B-EBBA	PRP2B-EFBA	PRP2B-EJCA
Non-filled gauge	PRP2B-EADA	PRP2B-EEDA	PRP2B-EBDA	PRP2B-EFDA	PRP2B-EJEA

* - To be used with dual pressure valves.

Notes:

1. Valves used with above models must be external pilot models.
2. Cannot field convert regulator block from single pressure to dual pressure.
3. Cannot field convert from internal pilot to external pilot.
4. Wired for double solenoid valves.

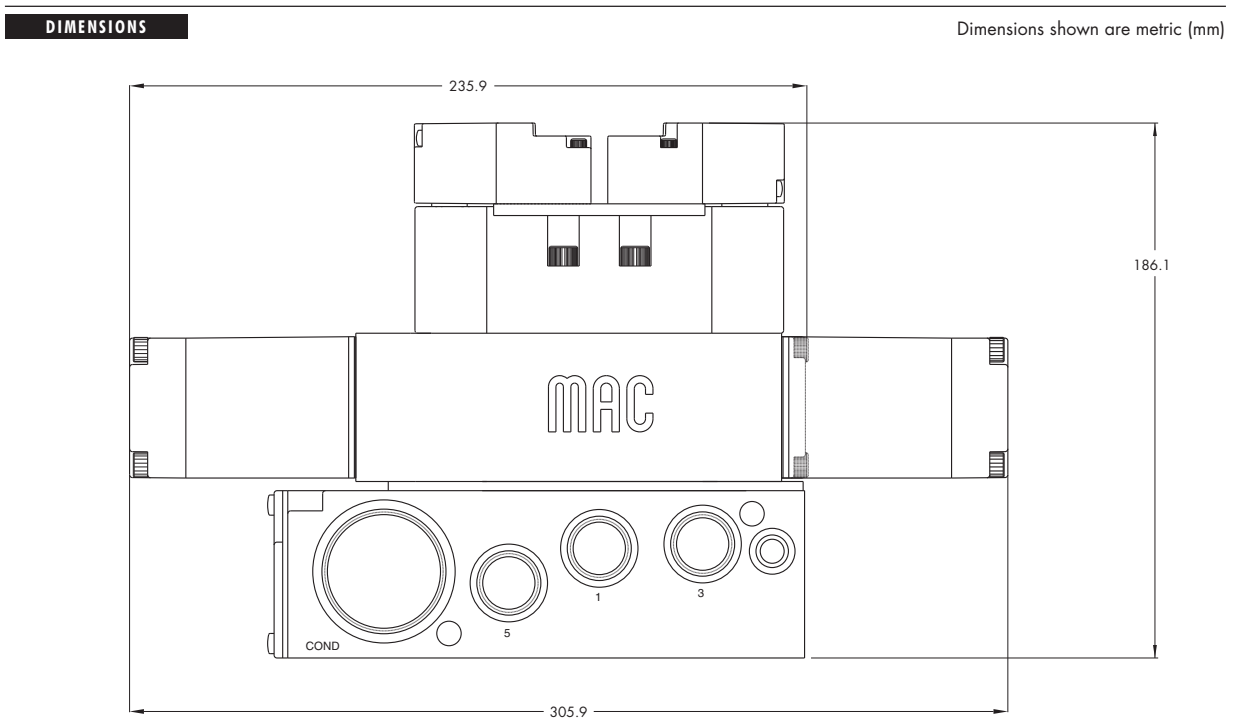


100%
OF
PRODUCTION
TESTED
100%

WARRANTY
18
MONTHS

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	3100 NI/min (Cv 3.1)

- Spare parts :
- Pressure regulator (less sandwich block): PRP2B-FOAA
 - Body/block to base mounting screw: 19177



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		

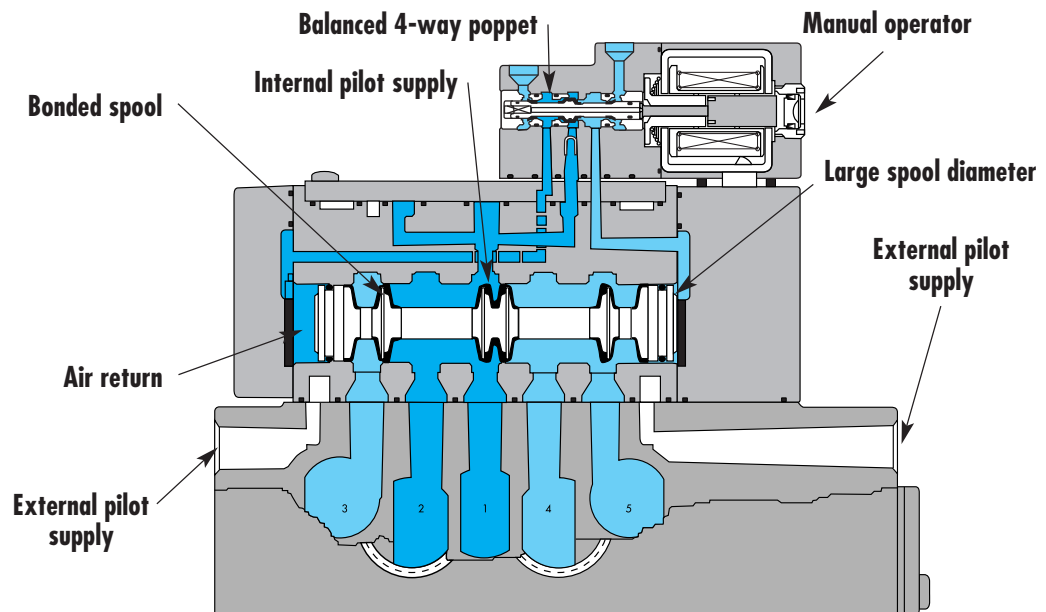
Direct solenoid and solenoid pilot operated valves

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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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
--	--



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.

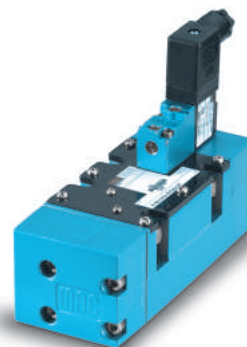
Function Port size Flow [Max] Individual/Manifold mounting

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.



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	5/3 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

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			

* Other options available, see page options.

Note: ISO series, valve and base are ordered separately, see page for base code.

OPTIONS

Valve function :

MV-B3A-**AXXX**-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 :

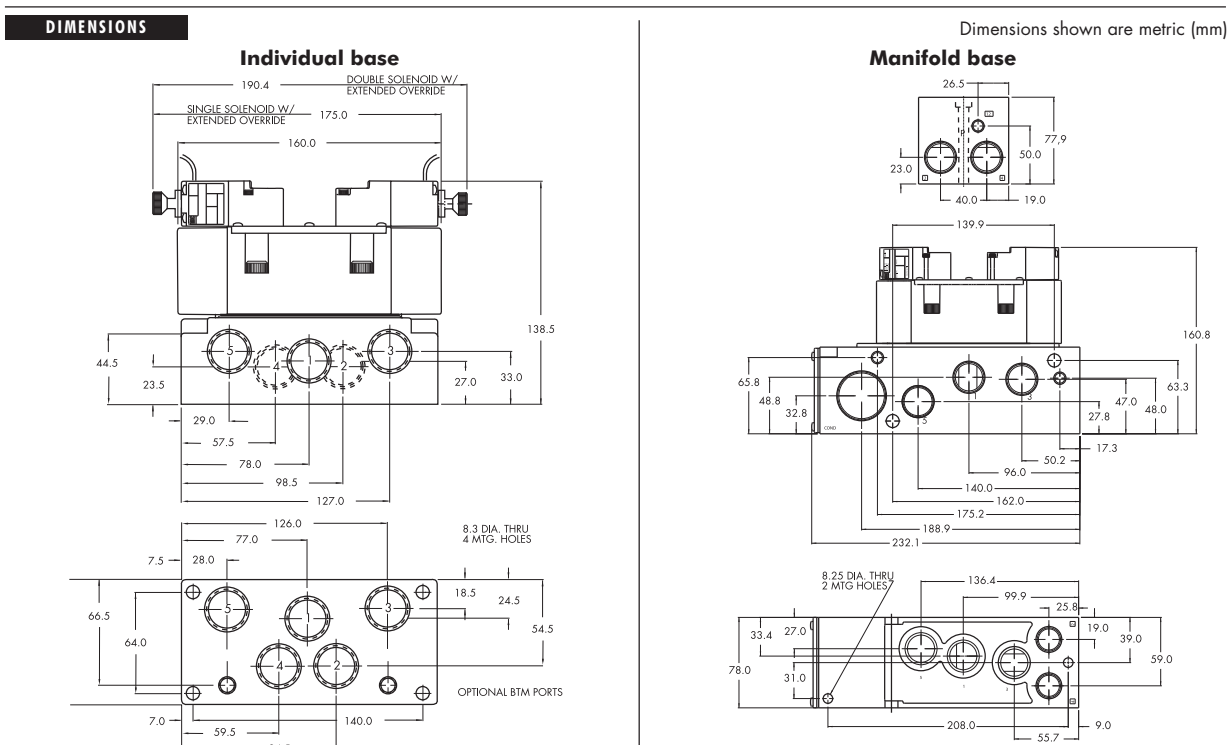
MV-B3A-AX**AX**-XX-Dxxx-xxx

- A** Standard return
B Memory spring return

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 :	Single operator and 3 positions : 1,3 to 8 bar double operator : 2 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 :	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





Direct solenoid and solenoid pilot operated valves

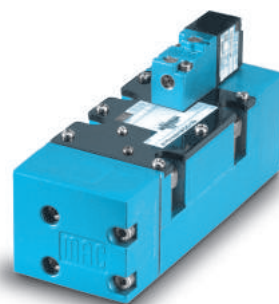
Function Port size Flow [Max] Individual/Manifold mounting

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	5/3 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		

* Other options available, see page options.
Note: - ISO series, valve and base are ordered separately, see page for base codes.
- Ground wire required for 30 volts or higher.

OPTIONS

Valve function :

MV-P3A-**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-P3A-**AXXX**-**DM**-DxxP-xxx

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

Spool return :

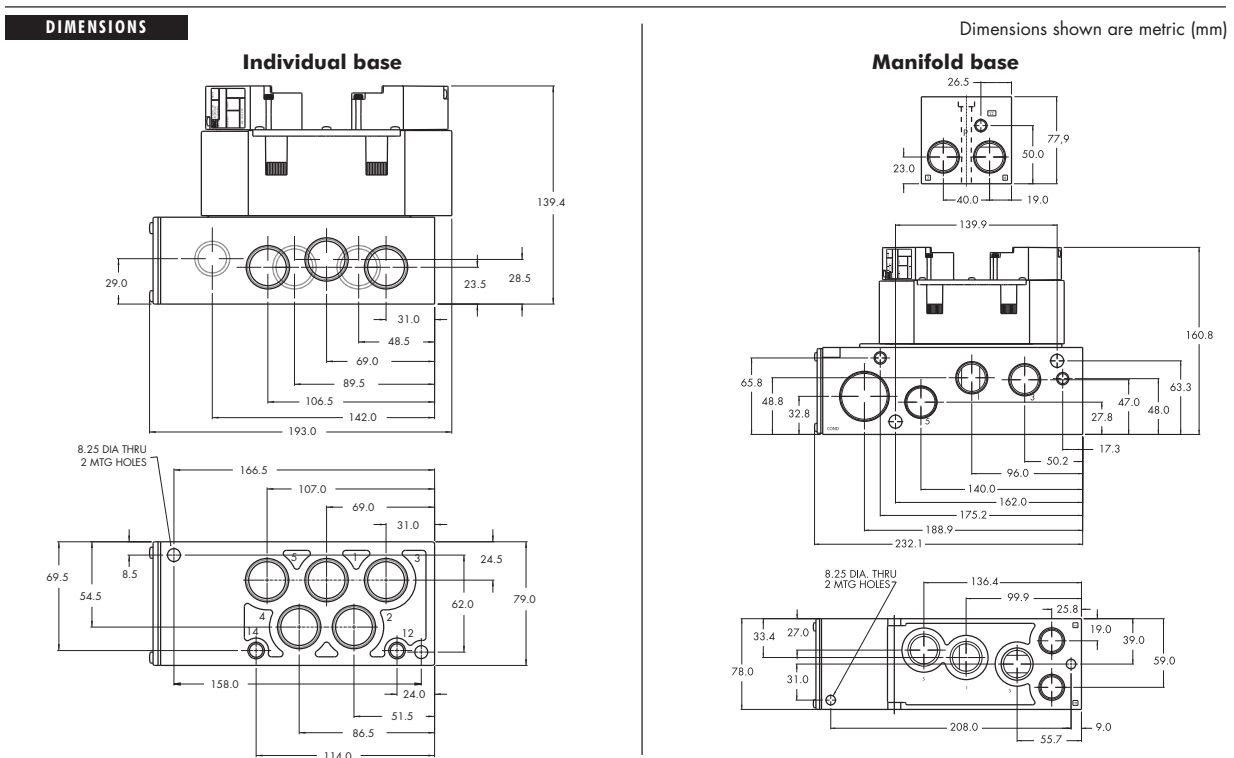
MV-P3A-**AXXX**-XX-DxxP-xxx

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

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 :	Single operator and 3 positions : 1,3 to 8 bar double operator : 2 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 :	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





Remote air valves

Function Port size Flow [Max] Individual/Manifold mounting

5/2 - 5/3

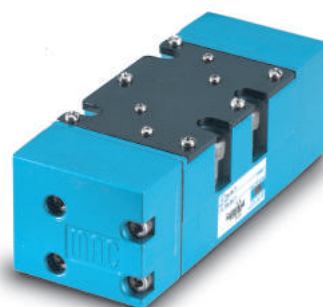
G1/2" - G3/4"

6200 NI/min

Valve only
no base

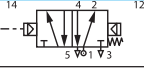
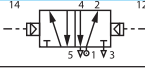
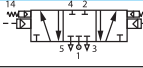
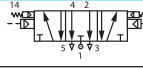
OPERATIONAL BENEFITS

1. Balanced spool, immune to variations of pressure.
2. Powerful return forces thanks to the combination of mechanical and air springs.
3. Bonded spool with minimum friction, shifting in a glass-like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.

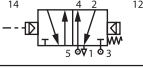
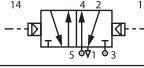
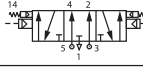


HOW TO ORDER

SINGLE PRESSURE MODELS

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed centre	5/3 Open centre
				
Internal	MV-R3A-BACF			
External	MV-R3A-BACG	MV-R3A-BBAK	MV-R3A-BEAK	MV-R3A-BFAK

DUAL PRESSURE MODELS

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure centre
			
Internal port #3	MV-R3A-BCCH		
Internal port #5	MV-R3A-BCCJ	MV-R3A-BDAK	MV-R3A-BGAK
External	MV-R3A-BCCG		

Note: ISO series, valve and base are ordered separately, see page for base code.



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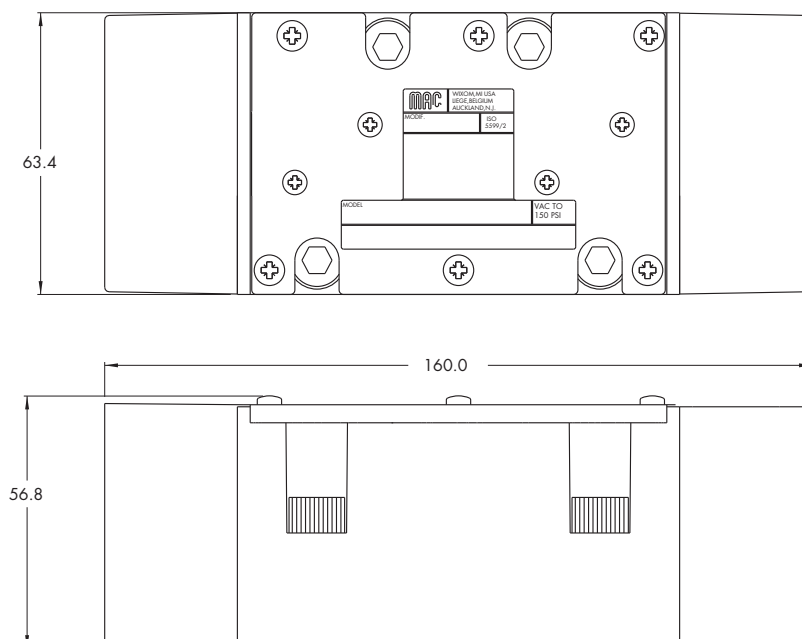
WARRANTY
18
MONTHS

TECHNICAL DATA	
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single/double operator: 1,3 to 10 bar 3 position: 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 :	24 mm
Flow :	G1/2": 5400 Nl/min (Cv 5,4) – G3/4" : 6200 Nl/min (Cv 6,2)

Spare parts : • Valve to base pressure seal: 16614 • Valve mounting screws (x4): 35451

DIMENSIONS

Dimensions shown are metric (mm)



Non plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G1/2"	MB-B3A-121-A	MB-B3A-123-A	MB-B3A-122-A	MB-B3A-124-A
G3/4"	MB-B3A-131-A	MB-B3A-133-A	MB-B3A-132-A	MB-B3A-134-A

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/2"	HB-B3A-A	HB-B3A-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom port 1
G1/2"	MM-B3A-121-A	MM-B3A-123-A	MM-B3A-122-A	MM-B3A-124-A
G3/4"	MM-B3A-131-A	MM-B3A-133-A	MM-B3A-132-A	MM-B3A-134-A

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Side ports
G1/2"	HM-B3A-C

End plate kit: HM-B3A-D.

Manifold fastening kit: N-P3003-01.

Valve blanking plate: M-P3001.

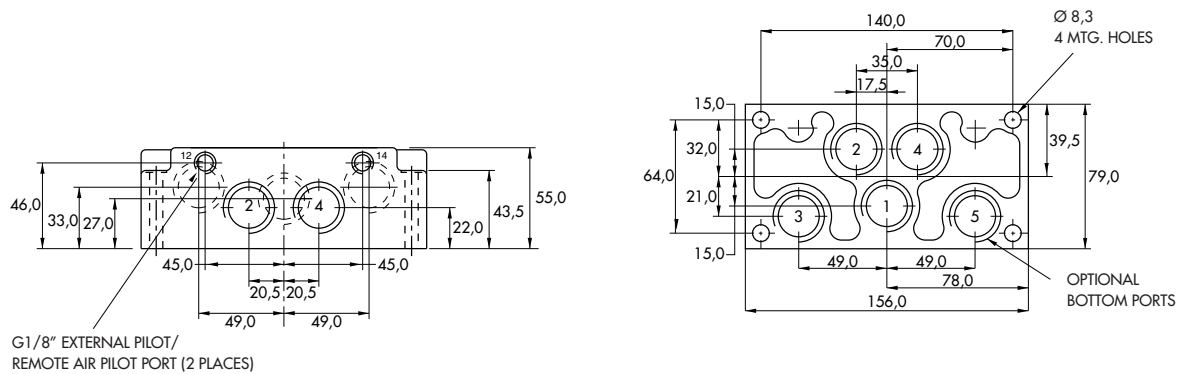
Inlet/exhaust isolator plug: 32845.

DIMENSIONS

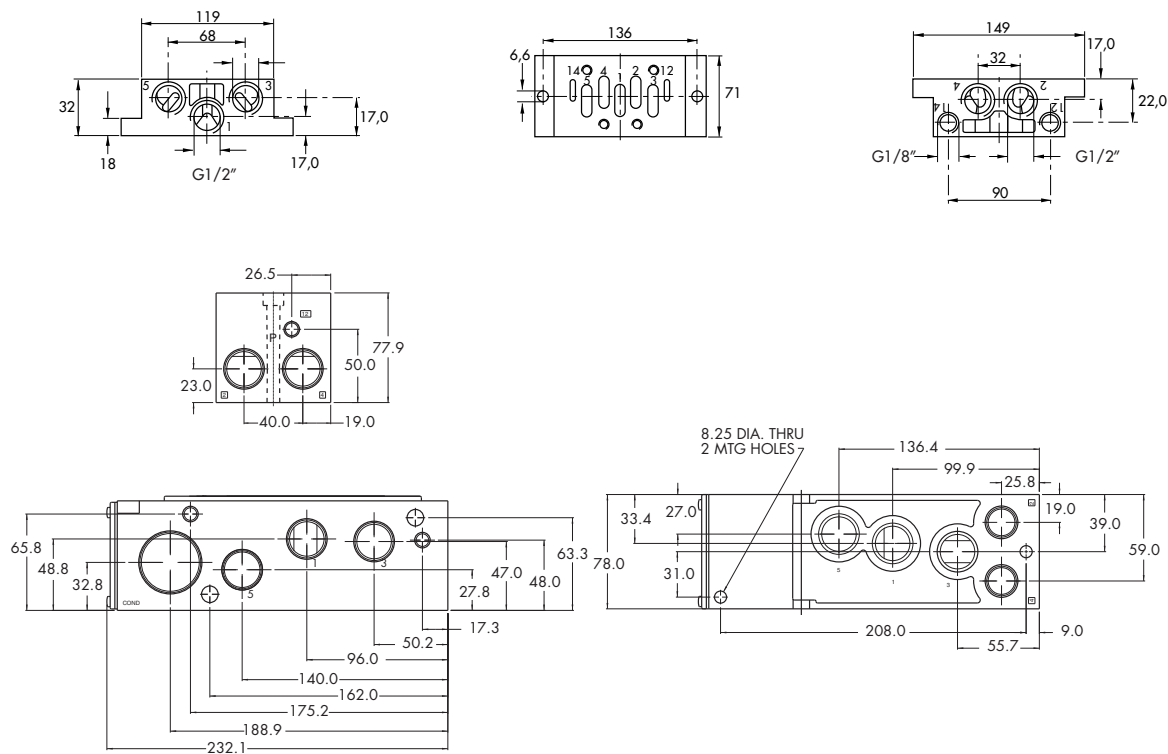
Dimensions shown are metric (mm)

Individual

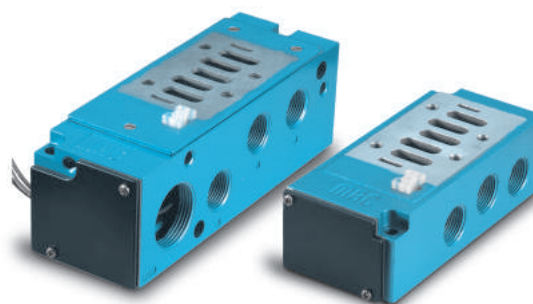
ISO DIN 5599/1



Manifold



Plug-in base / manifold



HOW TO ORDER

INDIVIDUAL BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports
G1/2"	Single solenoid	MB-P3A-121-A	MB-P3A-122-A	MB-P3A-123-A
	Double solenoid	MB-P3A-121-B	MB-P3A-122-B	MB-P3A-123-B
G3/4"	Single solenoid	MB-P3A-131-A	MB-P3A-132-A	MB-P3A-133-A
	Double solenoid	MB-P3A-131-B	MB-P3A-132-B	MB-P3A-133-B

MANIFOLD BASE

Port size	Wired for	Side ports	Side ports w/ bottom 2 & 4 ports	All side & bottom ports (see note)
G1/2"	Single solenoid	MM-P3A-121-A	MM-P3A-122-A	MM-P3A-123-A
	Double solenoid	MM-P3A-121-B	MM-P3A-122-B	MM-P3A-123-B
G3/4"	Single solenoid	MM-P3A-131-A	MM-P3A-132-A	MM-P3A-133-A
	Double solenoid	MM-P3A-131-B	MM-P3A-132-B	MM-P3A-133-B

Note : Ports 1,3, and 5 are always 3/4".

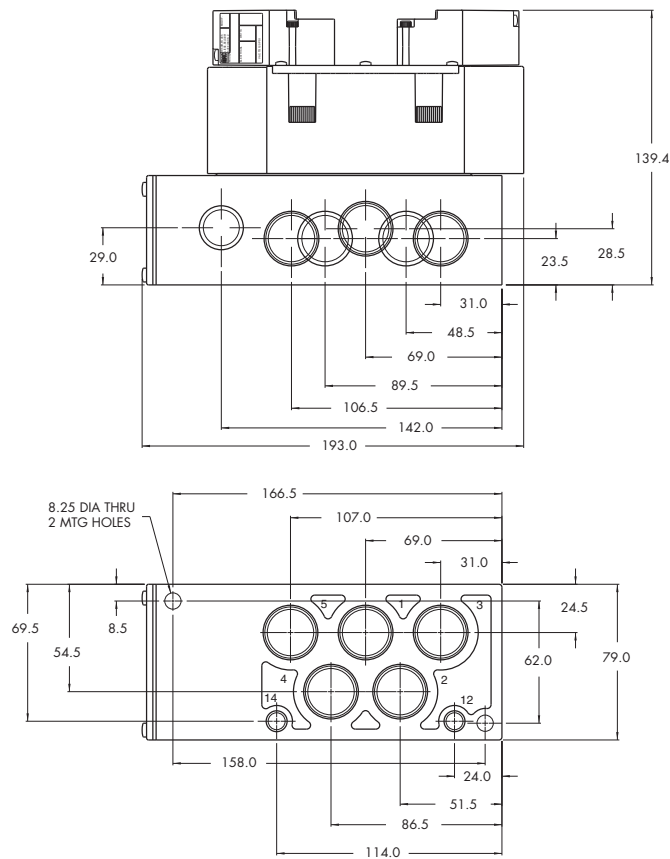
OPTIONS

Manifold options :	External pilot	MM-P3A-12x-xx	32 for 1/2" port – common external pilot 33 for 3/4" port – common external pilot
	Terminal strip	MM-P3A-xxx-A	J wired for sgl solenoid K wired for double solenoid
Base / Manifold option: light(s)		MX-P3A-xxx-xJA	JA 110/120 volt JB 220/240 volt DA 24 volt

Accessories: M-P3001 Valve blanking plate.
N-P3003-01 Manifold fastening kit.
32845 Inlet/exhaust isolator plug.

DIMENSIONS

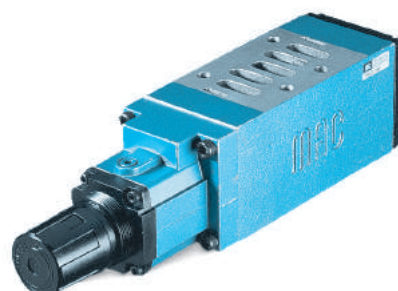
Dimensions shown are metric (mm)



Non plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-1AAA	PRA3C-1EAA	PRA3C-1BAA	PRA3C-1FAA	PRA3C-1JAA
Non-filled gauge on regulator(s)	PRA3C-1ADA	PRA3C-1EDA	PRA3C-1BDA	PRA3C-1FDA	PRA3C-1JEA
Non-filled gauge opposite to regulator	PRA3C-1CDA	PRA3C-1GDA	PRA3C-1DDA	PRA3C-1HDA	-----
Glycerine filled gauge on regulator(s)	PRA3C-1ABA	PRA3C-1EBA	PRA3C-1BBA	PRA3C-1FBA	PRA3C-1JCA
Glycerine filled gauge opposite to regulator	PRA3C-1CBA	PRA3C-1GBA	PRA3C-1DBA	PRA3C-1HBA	-----

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRA3C-2AAA	PRA3C-2EAA	PRA3C-2BAA	PRA3C-2FAA	PRA3C-2JAA
Non-filled gauge on regulator(s)	PRA3C-2ADA	PRA3C-2EDA	PRA3C-2BDA	PRA3C-2FDA	PRA3C-2JEA
Non-filled gauge opposite to regulator	PRA3C-2CDA	PRA3C-2GDA	PRA3C-2DDA	PRA3C-2HDA	-----
Glycerine filled gauge on regulator(s)	PRA3C-2ABA	PRA3C-2EBA	PRA3C-2BBA	PRA3C-2FBA	PRA3C-2JCA
Glycerine filled gauge opposite to regulator	PRA3C-2CBA	PRA3C-2GBA	PRA3C-2DBA	PRA3C-2HBA	-----

* - To be used with dual pressure valves.

Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

ADJUSTMENT OPTIONS

PRA3C-XXXX

- A for slotted stem adjustment (internal pilot)
- B for slotted stem adjustment (external pilot)
- D for slotted stem with locknut (internal pilot)
- E for slotted stem with locknut (external pilot)

TECHNICAL DATA

Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	5400 NI/min (Cv 5.4)

Spare parts :

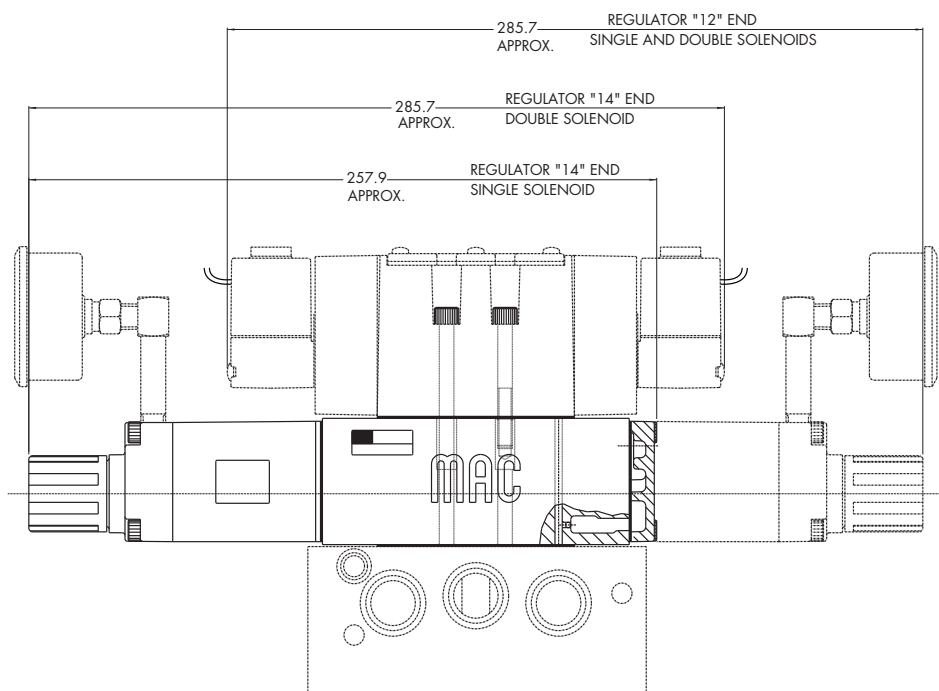
- Pressure regulator (less sandwich block) : PRA3C-30AA (KNOB), PRA3C-C0AA (SLOTTED STEM), PRA3C-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauge : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

Regulating range options : PRA3C-XXXA

Replace by B - 0 to 6,7 bar
Replace by C - 0 to 3 bar

DIMENSIONS

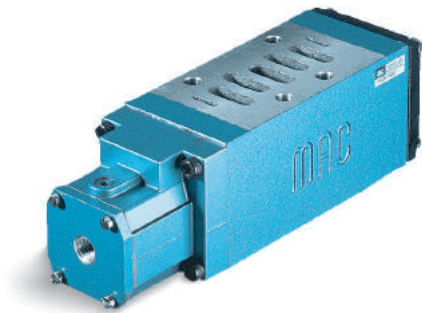
Dimensions shown are metric (mm)



Non plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting : saves on installation costs in comparison with inline regulators.
2. Allows to have compact, all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-4AAA	PRA3C-4EAA	PRA3C-4BAA	PRA3C-4FAA	PRA3C-4JAA
Non-filled gauge on regulator(s)	PRA3C-4ADA	PRA3C-4EDA	PRA3C-4BDA	PRA3C-4FDA	PRA3C-4JEA
Non-filled gauge opposite to regulator	PRA3C-4CDA	PRA3C-4GDA	PRA3C-4DDA	PRA3C-4HDA	-----
Glycerine filled gauge on regulator(s)	PRA3C-4ABA	PRA3C-4EBA	PRA3C-4BBA	PRA3C-4FBA	PRA3C-4JCA
Glycerine filled gauge opposite to regulator	PRA3C-4CBA	PRA3C-4GBA	PRA3C-4DBA	PRA3C-4HBA	-----

EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4	Dual pressure Regulator 12 end Regulated pressure to port 2	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-5AAA	PRA3C-5EAA	PRA3C-5BAA	PRA3C-5FAA	PRA3C-5JAA
Non-filled gauge on regulator(s)	PRA3C-5ADA	PRA3C-5EDA	PRA3C-5BDA	PRA3C-5FDA	PRA3C-5JEA
Non-filled gauge opposite to regulator	PRA3C-5CDA	PRA3C-5GDA	PRA3C-5DDA	PRA3C-5HDA	-----
Glycerine filled gauge on regulator(s)	PRA3C-5ABA	PRA3C-5EBA	PRA3C-5BBA	PRA3C-5FBA	PRA3C-5JCA
Glycerine filled gauge opposite to regulator	PRA3C-5CBA	PRA3C-5GBA	PRA3C-5DBA	PRA3C-5HBA	-----

* - To be used with dual pressure valves.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block. Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

TECHNICAL DATA

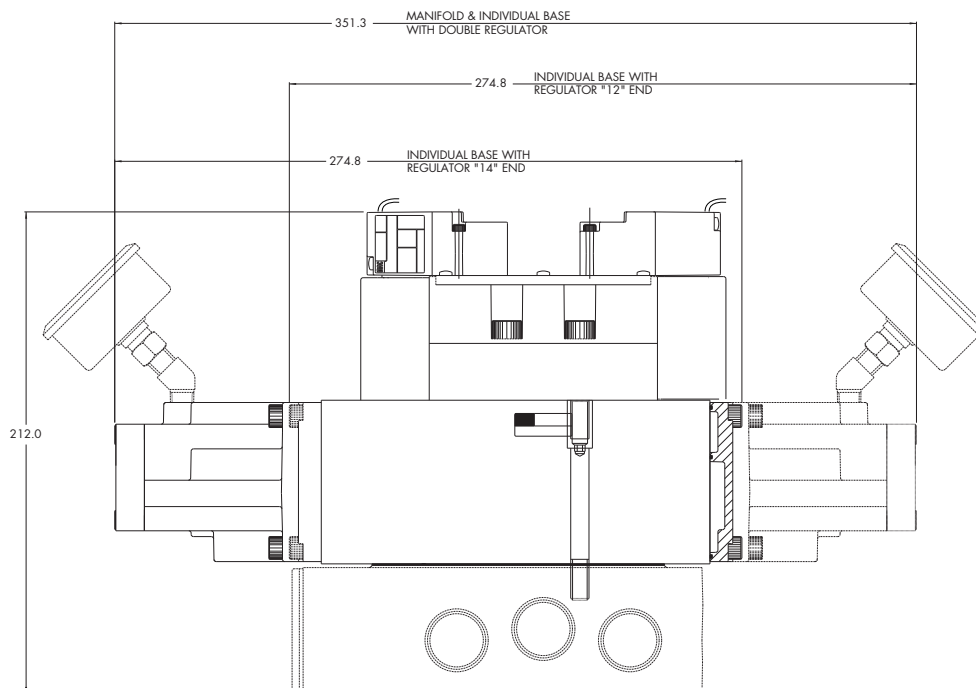
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C
Flow :	5400 NI/min (Cv 5.4)

Spare parts :

- Pressure regulator (less sandwich block) : PRA3C-60AA.
- Gauge : • Glycerine filled : N-62015-01
- Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)



Plug-in sandwich pressure regulator with manual adjust knob

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP3B-AAAA	PRP3B-AEAA	PRP3B-ABAA	PRP3B-AFAA	PRP3B-AJAA
Glycerine gauge	PRP3B-AABA	PRP3B-AEBA	PRP3B-ABBA	PRP3B-AFBA	PRP3B-AJCA
Non-filled gauge	PRP3B-AADA	PRP3B-AEDA	PRP3B-ABDA	PRP3B-AFDA	PRP3B-AJEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR (CODED FOR KNOB ADJUSTMENT)

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP3B-BAAA	PRP3B-BEAA	PRP3B-BBAA	PRP3B-BFAA	PRP3B-BJAA
Glycerine gauge	PRP3B-BABA	PRP3B-BEBA	PRP3B-BBBA	PRP3B-BFBA	PRP3B-BJCA
Non-filled gauge	PRP3B-BADA	PRP3B-BEDA	PRP3B-BBDA	PRP3B-BFDA	PRP3B-BJEA

* For use with dual pressure valves.

ADJUSTMENT OPTIONS

PRP3B-XXXX

- G** for slotted stem (internal pilot)
- H** for slotted stem (external pilot)
- K** for slotted stem with locknut (internal pilot)
- L** for slotted stem with locknut (external pilot)

Notes:

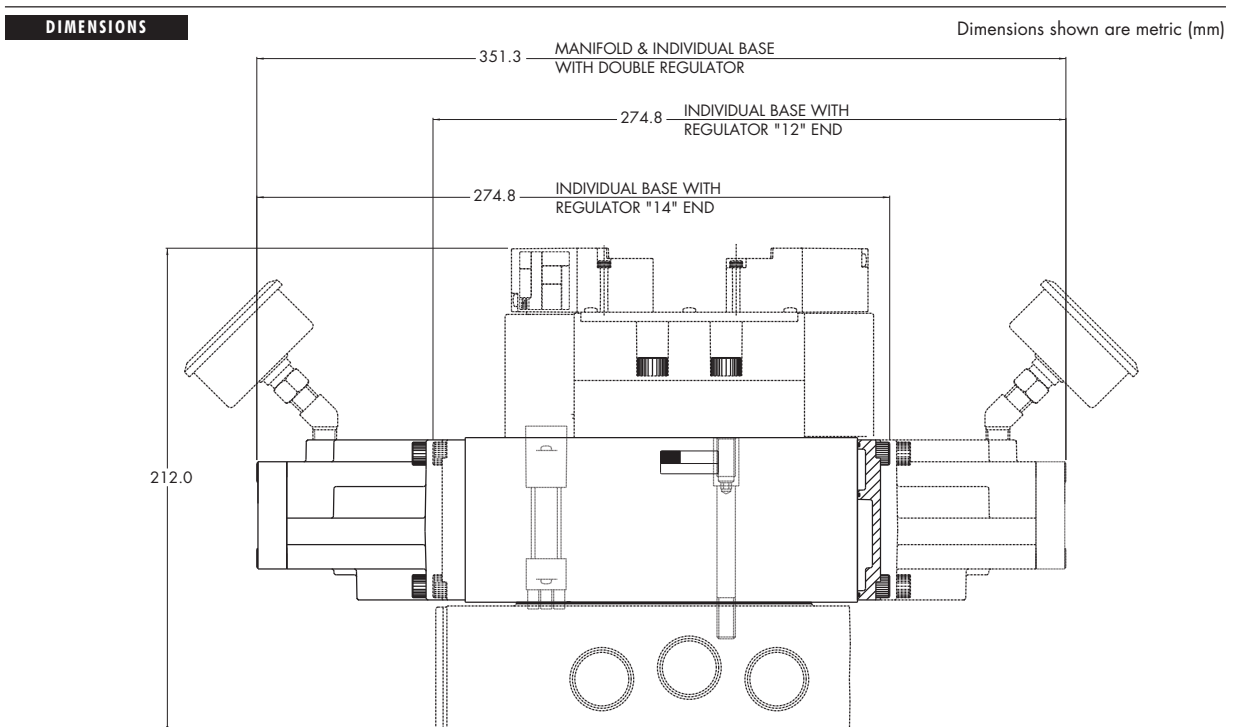
1. Regulating range for above models is 0-10 bar. For other ranges, see technical data page.
2. Valves used with above models must be external pilot models.
3. Cannot field convert regulator block from single pressure to dual pressure.
4. Cannot field convert from internal pilot to external pilot.
5. Wired for double solenoid valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar)	5400 NI/min (Cv 5.4)

Spare parts :

- Pressure regulator (less sandwich block): PRP3B-C0AA (knob), PRP3B-J0AA (slotted stem), PRP3B-M0AA (slotted stem with locknut)
- Regulating block to base mounting screw: 19457
- Regulating range options: PRP3B-xxxA

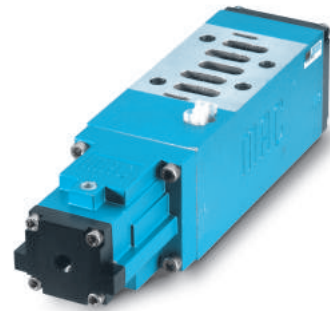
Replace by B for 0 to 6,7 bar
Replace by C for 0 to 3 bar



Plug-in sandwich pressure regulator with air pilot adjust

OPERATIONAL BENEFITS

1. Easy mounting: saves on installation costs in comparison with inline regulators.
2. Compact all-included units.
3. Large orifice provides high flow.
4. Various functions available.
5. Simple, reliable and solid design.



HOW TO ORDER

REGULATORS FOR INTERNAL PILOT

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP3B-DAAA	PRP3B-DEAA	PRP3B-DBAA	PRP3B-DFAA	PRP3B-DJAA
Glycerine gauge	PRP3B-DABA	PRP3B-DEBA	PRP3B-DBBA	PRP3B-DFBA	PRP3B-DJCA
Non-filled gauge	PRP3B-DADA	PRP3B-DEDA	PRP3B-DBDA	PRP3B-DFDA	PRP3B-DJEA

REGULATORS FOR EXTERNAL PILOT AND REMOTE AIR

Gauge	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure Regulator 14 end Regulated pressure to port 4 *	Dual pressure Regulator 12 end Regulated pressure to port 2 *	Dual pressure Dual regulator Two regulated pressures to ports 2 and 4 *
No gauge	PRP3B-EAAA	PRP3B-EEAA	PRP3B-EBAA	PRP3B-EFAA	PRP3B-EJAA
Glycerine gauge	PRP3B-EABA	PRP3B-EEBA	PRP3B-EBBA	PRP3B-EFBA	PRP3B-EJCA
Non-filled gauge	PRP3B-EADA	PRP3B-EEDA	PRP3B-EBDA	PRP3B-EFDA	PRP3B-EJEA

* - To be used with dual pressure valves.

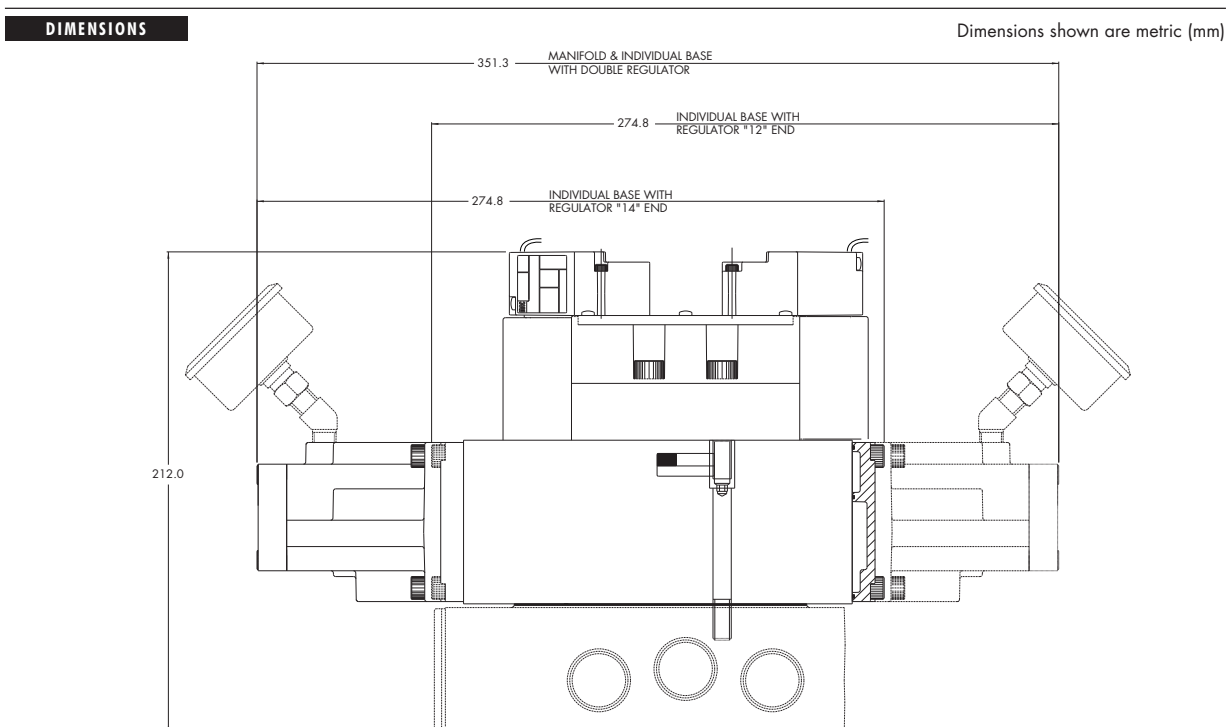
Notes:

1. Valves used with above models must be external pilot models.
2. Cannot field convert regulator block from single pressure to dual pressure.
3. Cannot field convert from internal pilot to external pilot.
4. Wired for double solenoid valves.

TECHNICAL DATA	
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration :	40 µ
Temperature range :	-18°C to +50°C
Flow (at 6 bar, $\Delta P=1$ bar) :	5400 NI/min (Cv 5.4)

Spare parts :

- Pressure regulator (less sandwich block): PRP3B-F0AA
- Regulator block to base mounting screw: 19457



Codification table for voltages / Manual operator / Electrical connection

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

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	DG	Plug-in with ground
DT	75V=/5,6W	DH	Plug-in with diode & ground
DP	48V=/5,8W	DJ	Plug-in with M.O.V. & ground
FA	12V=/1,8W	DM	Plug-in
FB	24V=/1,8W	DN	Plug-in with diode
FE	12V=/2,4W	DP	Plug-in with M.O.V.
FF	24V=/2,4W	JB	Rectangular connector
JA	120V~/60Hz, 110V~/50Hz (2,9W)	JD	Rectangular connector with light
JB	240V~/60Hz, 220V~/50Hz (2,9W)	JM	Rectangular connector, male only
JC	24V~/60Hz, 24V~/50Hz (3,7W)	KA	Square connector
JD	100V~/60Hz, 100V~/50Hz, 110V~/60Hz (3,9W)	KB	Square connector with protection diode
JE	220V~/60Hz (3,4W)	KC	Square connector with protection varistor
JF	240V~/50Hz (2,8W)	KD	Square connector with light
JG	200V~/60Hz, 200V~/50Hz (3,9W)	KE	Square connector with light and protection diode
		KF	Square connector with light and protection varistor
		KG	Square connector with light & diode
		KJ	Square connector (male only)
		KK	Square connector with protection diode (male only)
		KL	Square connector with protection varistor (male only)
		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		



MAC VALVES WARRANTY, WARRANTY LIMITATIONS, FLAT RATE REBUILD PROGRAM

The MAC Valves organization has established a reputation over many years for fulfilling the needs and requirements of the users of its products. All MAC Valves are quality products specifically designed and built for long and rugged service. For this reason, MAC Valves is able to provide the Buyer a limited warranty.

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

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

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

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



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

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



MAC Valves, Inc. is a global manufacturing leader in pneumatic and fluid valves, proportional valves, flow control and regulator technology. MAC was founded in 1948 with a focus on establishing and maintaining our position as the technological leader in our market, having since amassed over 80 patents related to pneumatic valves and their auxiliary components.

With our presence on four continents globally, and representation in every major industrial market in the world through the MDN (MAC Distributor Network), MAC has a global presence to support our customers need to keep their machines running profitability around the clock, around the world.

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