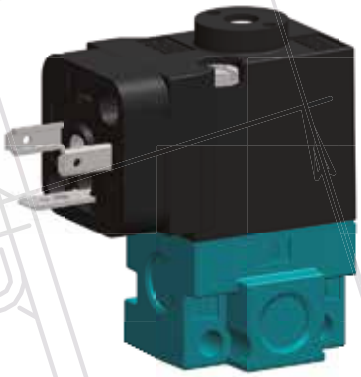
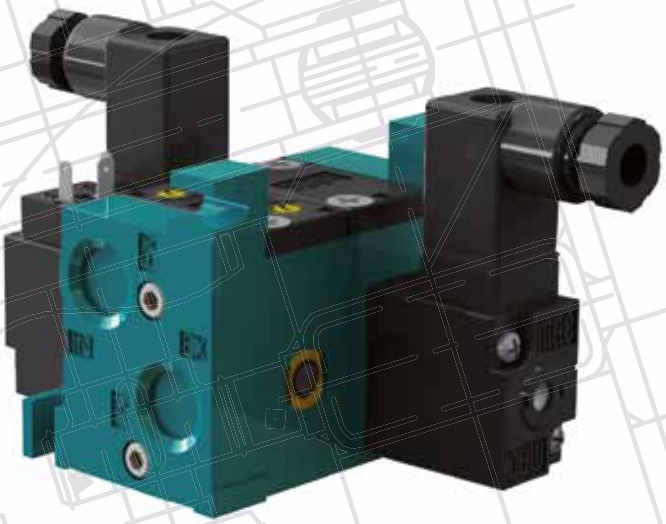
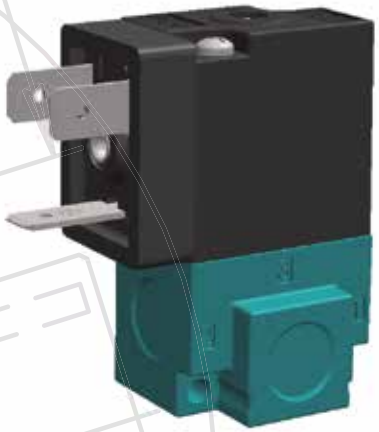
MAC VALVES

MAC Current Tech Catalog







MR190035 - 12-12-2019 - Revision 01

Welcome to your brand new MAC VALVES catalogue.

Inside you will find more than 25 different valve series to meet the majority of industrial requirements.
They have been sorted and classified in such a way that you may easily find the required valve series.

For more than 70 years, MAC has based all new valve developments upon the specifications received from customers, both users and OEM's.
A lot of different modifications have been released for all fields of industry (automotive, aluminium, packaging, food, sorting, ...). Although they are not listed in this catalog, our technical sales staff will be pleased to provide all necessary information.

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

- speed
- reliability
- consistency
- repeatability

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

MAC Valves,
Your Partner

Check the warranty page 277

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

MAC Valves 18 month guarantee plus lifetime coil guarantee

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

The flat rate rebuild program

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

Pneumatic functions

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

- Direct solenoid valves 3 ways : universal
  The following functions are available
  - 3 ways NC
  - 3 ways NO
  - 2 ways NC
  - 2 ways NO
  - Selector
  - Divertor

- 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 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)

- 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).

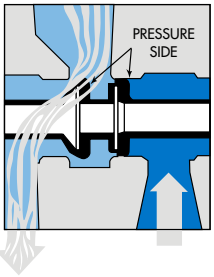
EVERY VALVE FULLY TESTED PRIOR TO SHIPMENT

Check the warranty page 277

MAC DESIGN FEATURES

SPOOLS/BODIES

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

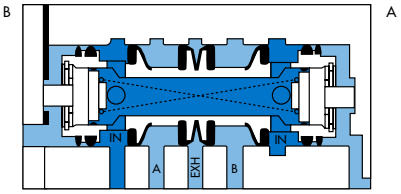


PILOT SYSTEM

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

3-POSITION CENTERING

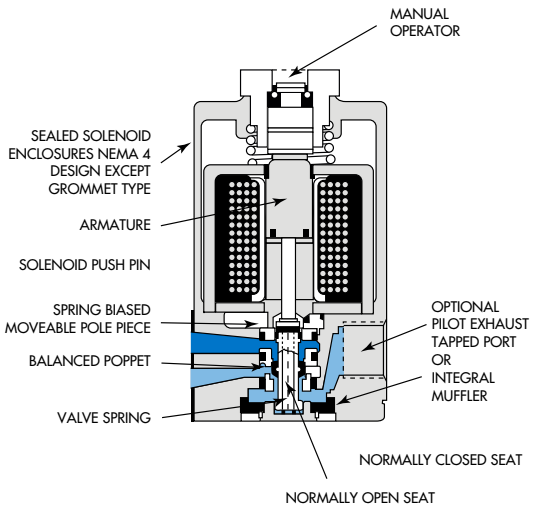
MAC 3-position solenoid and remote air pilot valves are centered by a patented spring centering device or patented combination spring and pressure assisted spool design which reduces side load potential and resultant wear, and assures fast, positive return of the main spool when the pilots are de-energized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



3 POS. CLOSED CENTER - CENTER POSITION

SOLENOID PILOT VALVES

Most MAC valves in this catalogue are pilot operated by a patented high flow, fast response Normally Closed Only version of the compact MAC 100 Series solenoid valve (shown below). Similarly on solenoid pilot 3-way valves, another version of the 100 or 200 series is used as the pilot. These patented burnout proof solenoid pilots provide extremely fast response times to an extent not equaled in other valves
Because air pressure does the work in shifting the main spool, minimal energy is consumed by the solenoid with no limitation in size of the main valve. On 120/60 AC service the inrush current is down to .12 Amps. On DC service wattages are available down to 1.0 Watts across almost the entire product line. (The 82 Series is piloted by a version of the 35 Series. On DC service, wattages are available down to 1.8 watts.).



Check the warranty page 277

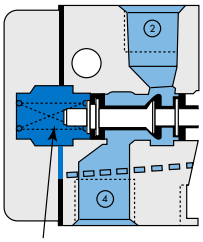
MAC DESIGN FEATURES

VIRTUALLY—BURN-OUT PROOF MACSOLENOID

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

AIR /SPRING RETURN

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



NON-LUBE SERVICE

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

COILS

MAC makes its own coils permitting flexibility in voltage requirements. If the voltage required is not listed with the valve Series desired or in the "options" section, consult the factory, we may be able to produce it. Two types of special coils are described below.
LOW WATTAGE DC—MAC provides optional low wattage DC solenoids for all the valves of this catalog down to 1.0 watts, (except for the 1300 Series which is 6.0 watts, and the 35 & 45 Series which is 1.8 watts). These low wattage options can significantly reduce power consumption, power supply capacity, control amplifier capacity and cost of all the above.
CLASS F—High temperature AC and DC coil option. Available on all AC and DC coils. On some high wattage coils listed in the catalog, Class F is required and is so noted. These higher wattage coils are specified as MOD CLSF (Class F Option). Higher wattage coils will provide extremely fast response times.

ADD-A-UNIT MANIFOLDS

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

Check the warranty page 277

TLD 5

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

Tool that offers all the components that allows you to:

- ✔ *Take measurements on site*
- ✔ *Show the strengths of the valves MAC*
- ✔ *High shifting forces and balanced design*
- ✔ *Compare the valves MAC with the competition*
- ✔ *Compact and easy to transport tool*

Check the warranty page 277

Table of contents

Check the warranty page 277

MAC 35 Series

MAC

35 Series

3/2-way direct solenoid operated

Available configurations:	Individual inline, stacking body and manifold base mounted with optional pressure regulator
pressure regulator	Manifold version only
Port sizes:	1/8'' ports
Flow:	Up to 250 Nl/min (0.25 Cv)
Pressure range:	Vacuum to 8 bar (120 PSI)
Function:	Normally closed, 3/2 universal
Operation:	Electrical

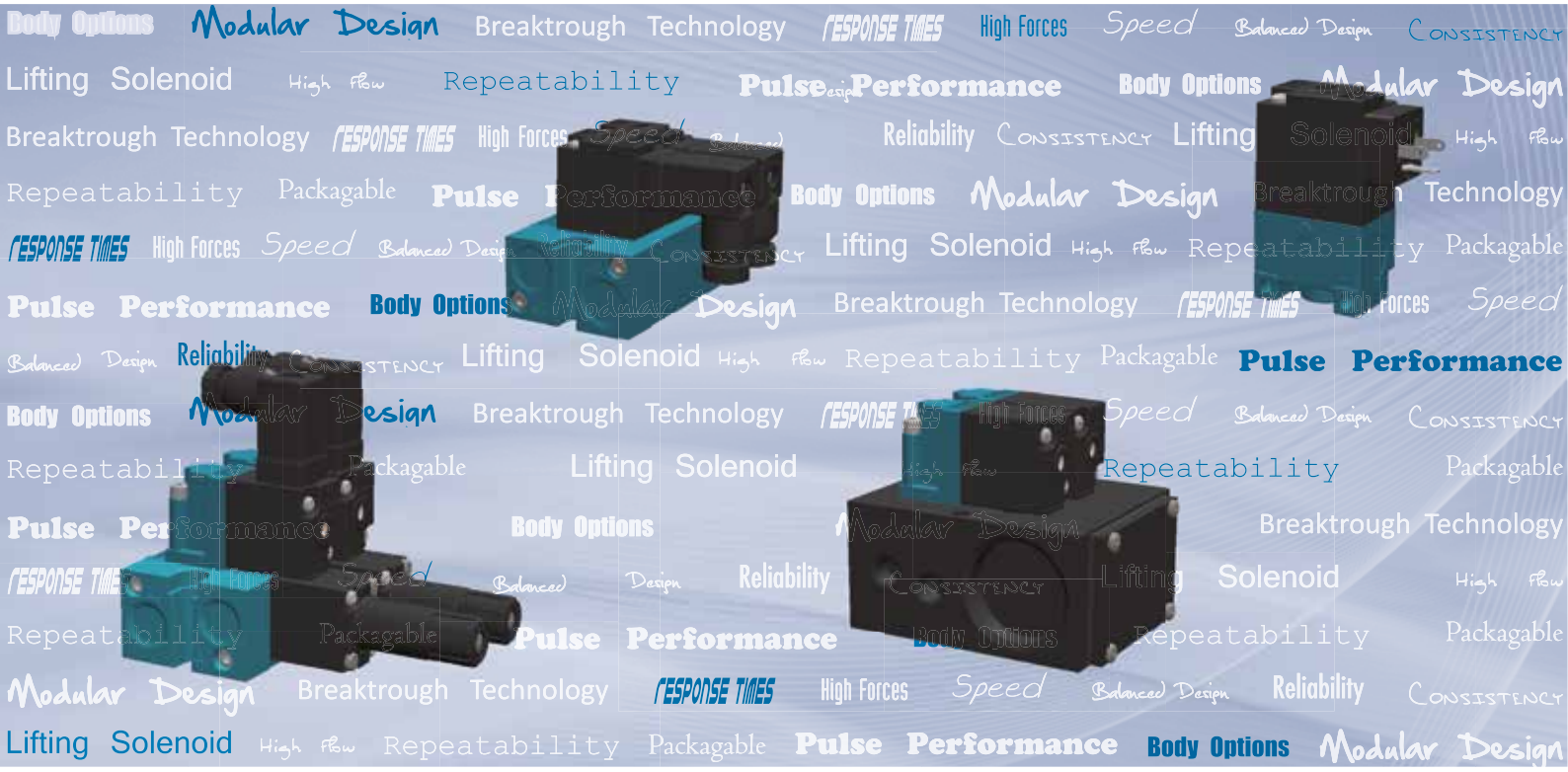
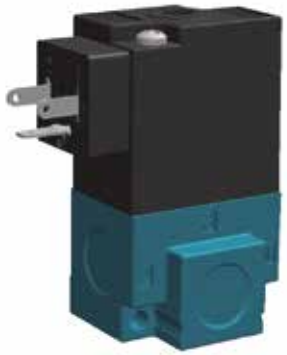


Table of contents

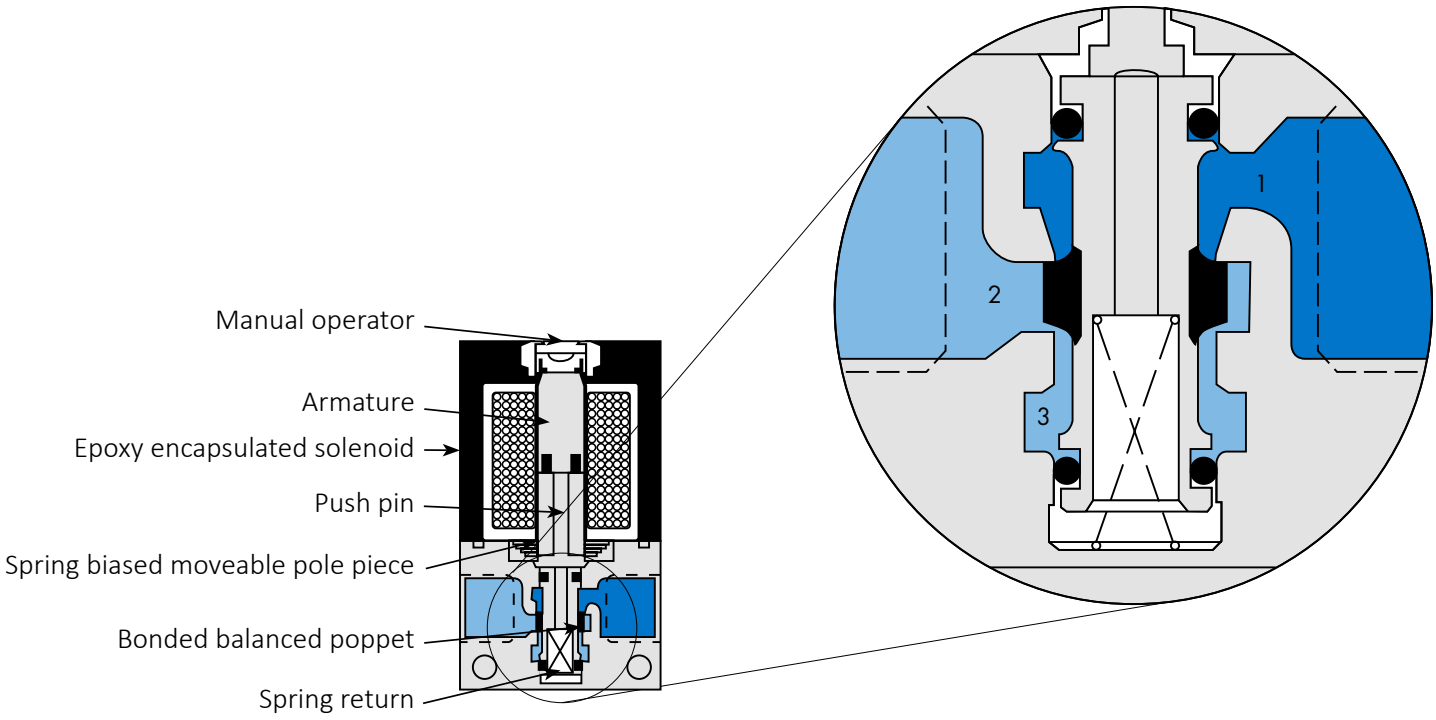
MAC 35 Series - Inline valve

3-way, 2 position, poppet

Flow up to 250 Nl/min (0.25 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
- ◊ AC + DC operation



MAC 35 Series - Inline valve

Technical data

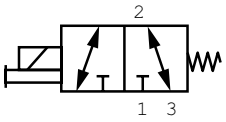
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8 - 2.4 watts): 80 Nl/min (0.08 Cv) Standard watt DC (5.4 watts): 150 Nl/min (0.15 Cv) All standard AC & high flow DC (5.4 - 7.2 watts): 170 Nl/min (0.17 Cv) High flow DC (7.3 - 9.2 watts) MOD 1125: 210 Nl/min (0.21 Cv) High flow DC (9.3 - 24 watts) & all AC MOD 1125: 250 Nl/min (0.25 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage (see 35A Solenoid options - page 20)
Power:	24 VAC/6 W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times:	24 VAC - 50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms 24 VDC/5.4 W Energize: 6 ms De-energize: 2 ms

Solenoid direct operated valve

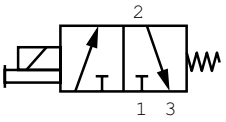
Single pressure models

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

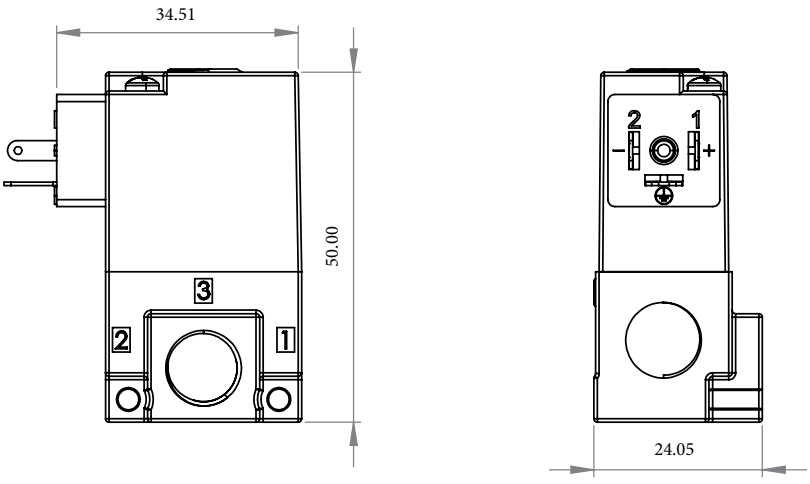
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

MAC 35 Series - Inline valve

Dimensions

35A-ACA-DDAJ-1KJ

All dimensions are in mm



MAC 35 Series

MAC 35 Series - Stacking valve

3-way, 2 position, poppet

Flow up to 250 Nl/min (0.25 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
- ◊ AC + DC operation

MAC 35 Series - Stacking valve

Technical data

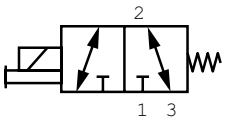
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8 - 2.4 watts): 120 Nl/min (0.12 Cv) Standard watt DC (5.4 watts): 160 Nl/min (0.16 Cv) All standard AC & high flow DC (5.4 - 7.2 watts): 170 Nl/min (0.17 Cv) High flow DC (7.3 - 9.2 watts) MOD 1125: 210 Nl/min (0.21 Cv) High flow DC (9.3 - 24 watts) & all AC MOD 1125: 250 Nl/min (0.25 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage (serie 35A solenoid option - page 20)
Power:	24 VAC/6 W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times:	24 VAC - 50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms 24 VDC/5.4 W Energize: 6 ms De-energize: 2 ms

Solenoid direct operated valve

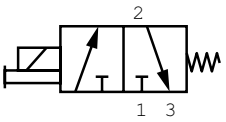
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

Valves 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

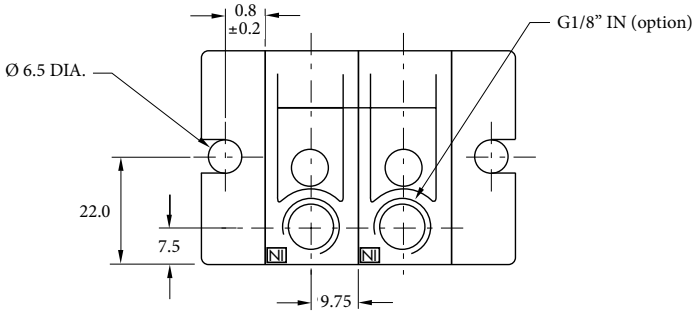
A single purpose Normally Closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

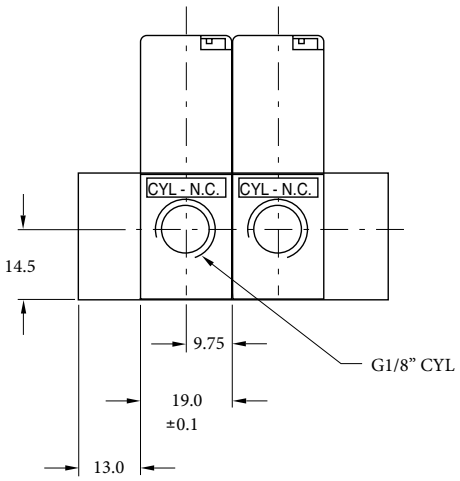
MAC 35 Series - Stacking valve

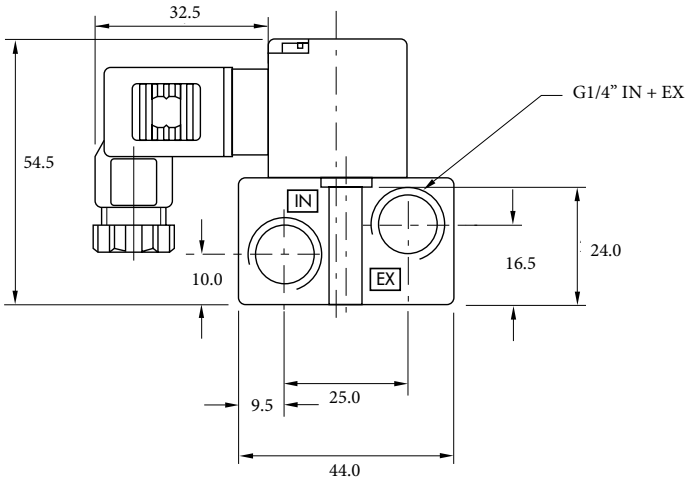
Dimensions

35A-SCC-DDAJ-1KA-9
35A-SCC-DDAJ-1KA-9
M-35001-01P-9

All dimensions are in mm





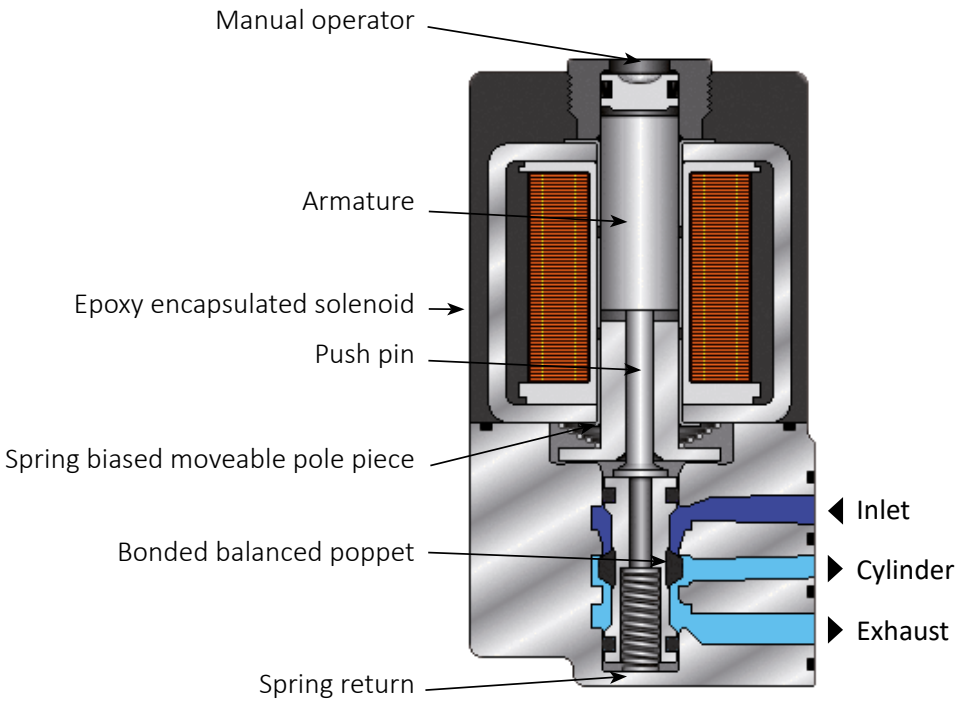


MAC 35 Series - Manifold non plug-in valve

3-way, 2 position, poppet

Flow up to 180 Nl/min (0.18 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
- ◊ Available for manifold base and circuit bar
- ◊ AC + DC operation



MAC 35 Series - Manifold non plug-in valve

Technical data

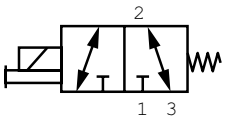
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8 - 2.4 watts): 90 Nl/min (0.09 Cv) Standard watt DC (5.4 watts): 100 Nl/min (0.10 Cv) All standard AC & high flow DC (5.4 - 7.2 watts): 140 Nl/min (0.14 Cv) High flow DC (7.3 - 9.2 watts) MOD 1125: 170 Nl/min (0.17 Cv) High flow DC (9.3 - 24 watts) & all AC MOD 1125: 180 Nl/min (0.18 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage (serie 35A solenoid options - page 20)
Power:	24 VAC/6 W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times:	24 VAC - 50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms 24 VDC/5.4 W Energize: 6 ms De-energize: 2 ms

Solenoid direct operated valve

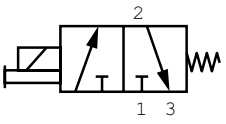
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

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

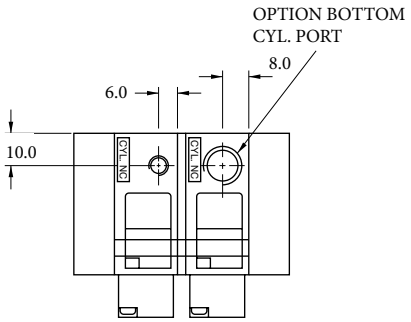
NORMALLY CLOSED ONLY MODELS

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.

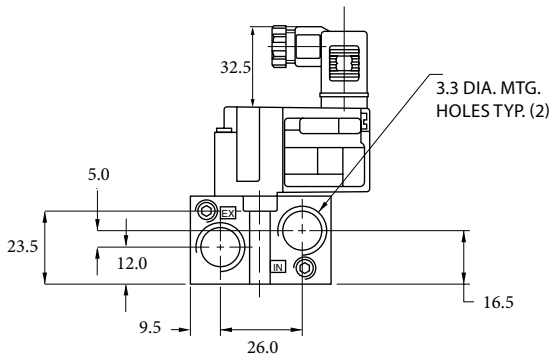
MAC 35 Series - Manifold non plug-in valve

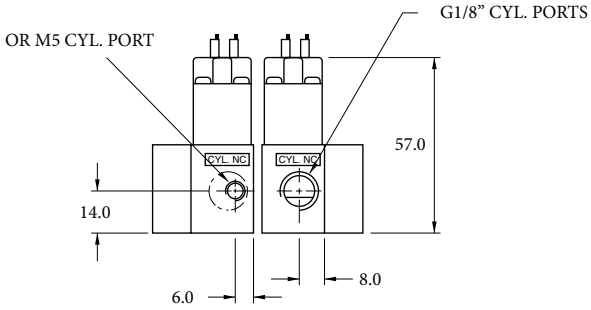
Dimensions

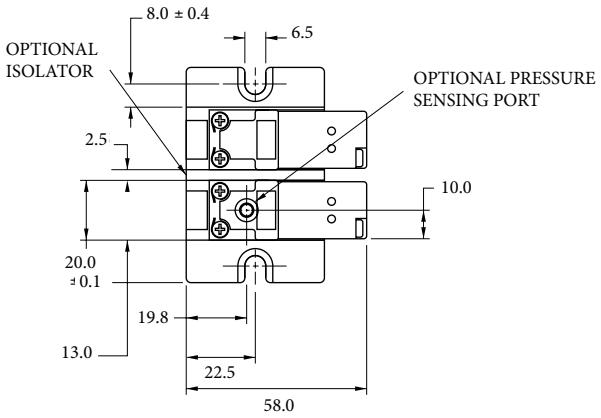
35A-BCE-DDAJ-1KA-9
35A-BCE-DDAJ-1KA-9
M-35003-01P-9



All dimensions are in mm





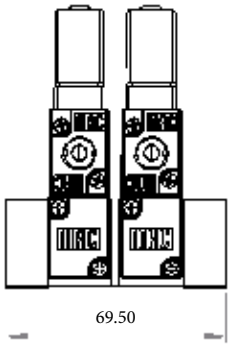


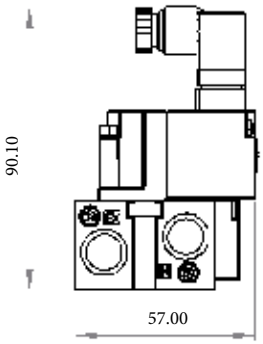
MAC 35 Series - Manifold non plug-in valve

Options

Manifold non plug-in base mounted without pressure regulator

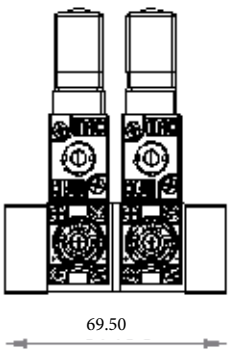
35A-BCE-DDAJ-1KA-9
35A-BCE-DDAJ-1KA-9
M-35003-01P-9
N-35006

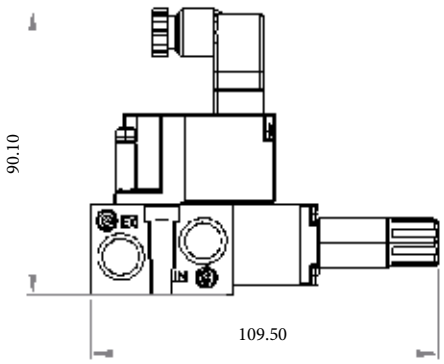




Manifold non plug-in base mounted with pressure regulator

35A-BCJ-DDAJ-1KA-9
35A-BCJ-DDAJ-1KA-9
M-35003-01P-9
N-35006



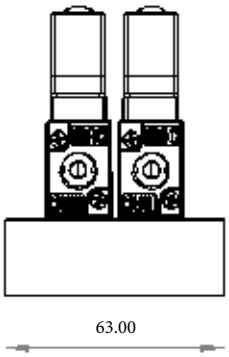


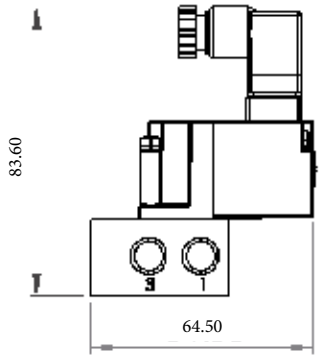
MAC 35 Series - Manifold non plug-in valve

Options

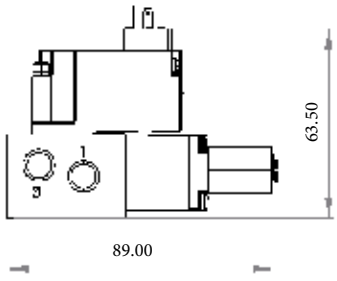
Manifold non plug-in circuit bar without regulator

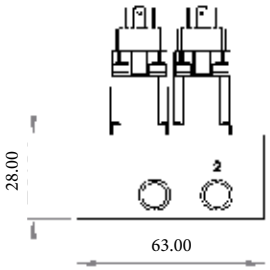
EBM35A-001C-02-9
35A-B00-DDAJ-1KA-9
35A-B00-DDAJ-1KA-9





Manifold non plug-in circuit bar with regulator





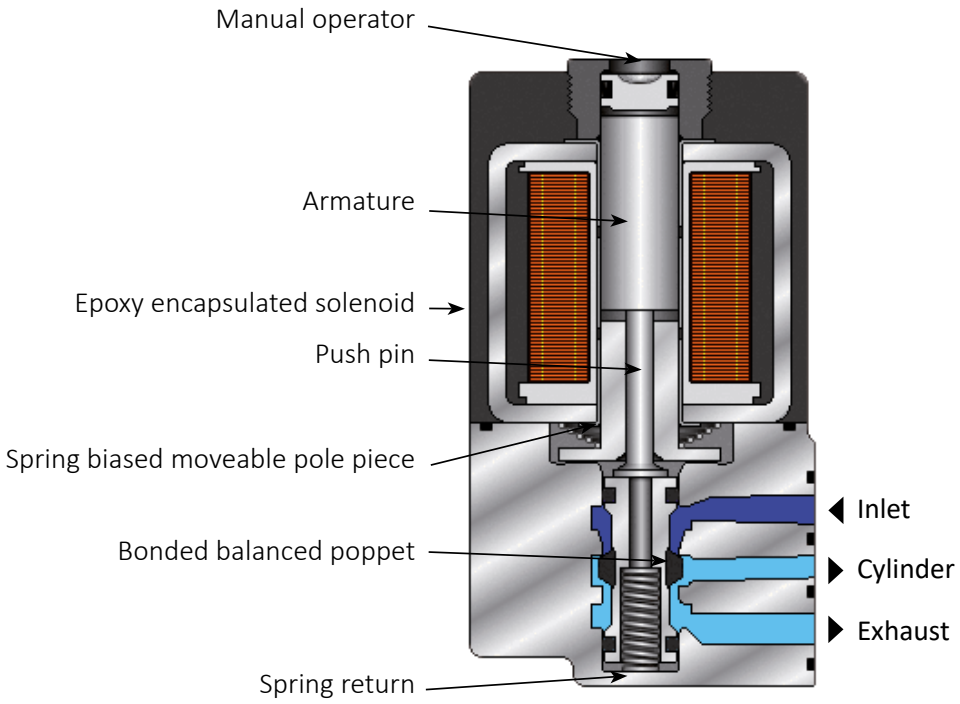
EBM35A-003C-02-9
35A-B00-DDAJ-1KJ-9
35A-B00-DDAJ-1KJ-9
35A-00L
35A-00L

MAC 35 Series - Manifold plug-in valve

3-way, 2 position, poppet

Flow up to 170 Nl/min (0.17 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
- ◊ Available for circuit bar
- ◊ AC + DC operation



MAC 35 Series - Manifold plug-in valve

Technical data

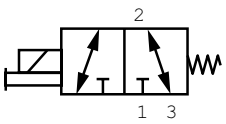
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8 - 2.4 watts): 80 Nl/min (0.08 Cv) Standard watt DC (5.4 watts): 90 Nl/min (0.09 Cv) All standard AC & high flow DC (5.4 - 7.2 watts): 140 Nl/min (0.14 Cv) High flow DC (7.3 - 9.2 watts) MOD 1125: 160 Nl/min (0.16 Cv) High flow DC (9.3 - 24 watts) & all AC MOD 1125: 170 Nl/min (0.17 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage (serie 35A solenoid options - page 20)
Power:	24 VAC/6 W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times:	24 VAC - 50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms 24 VDC/5.4 W Energize: 6 ms De-energize: 2 ms

Solenoid direct operated valve

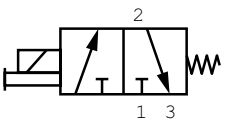
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

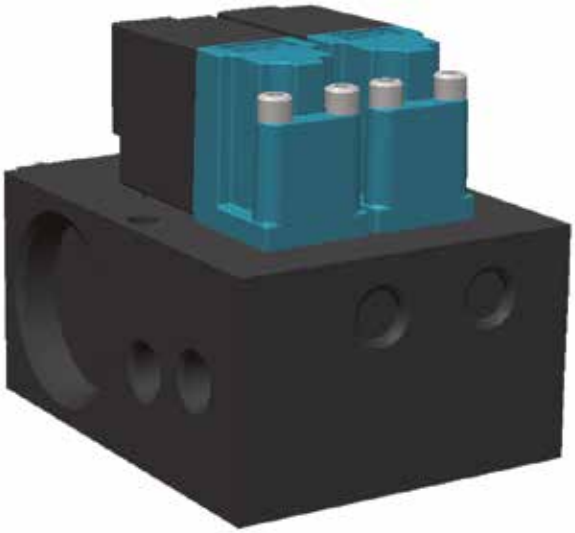
Valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

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.

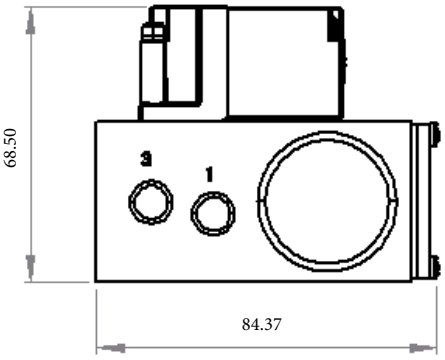
MAC 35 Series - Manifold plug-in valve

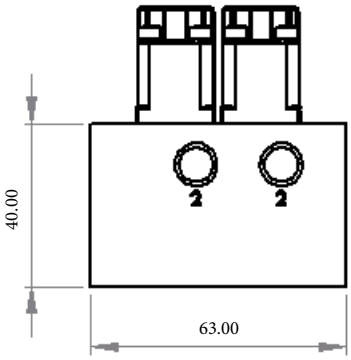
Dimensions



35A-B00-DDAJ-1FM-9
35A-B00-DDAJ-1FM-9
ECD35A-001C-A0-02-9

All dimensions are in mm

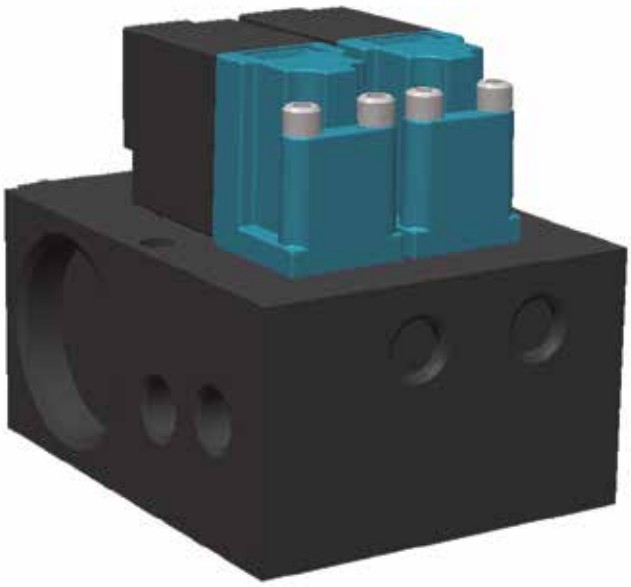




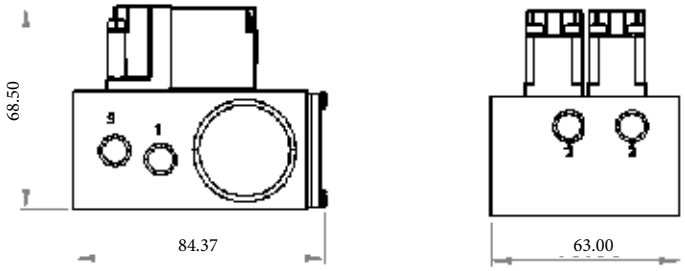
MAC 35 Series - Manifold plug-in valve on circuit bar

Options

Manifold plug-in valve on circuit bar without pressure regulator

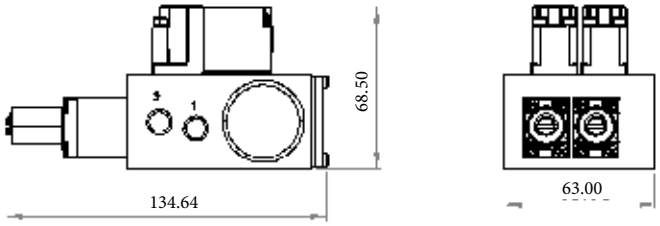


35A-B00-DDAJ-1FM-9
35A-B00-DDAJ-1FM-9
ECD35A-001C-A0-02-9



Manifold plug-in valve on circuit bar with pressure regulator

35A-B00-DDAJ-1FM-9
35A-B00-DDAJ-1FM-9
ECD35A-004C-02-9
35A-00L
35A-00L



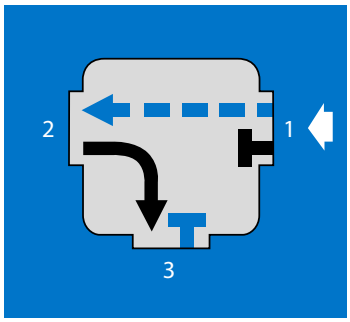
MAC 35 Series - Universal 3/2 & 2/2

VALVE CONFIGURATIONS AVAILABLE :

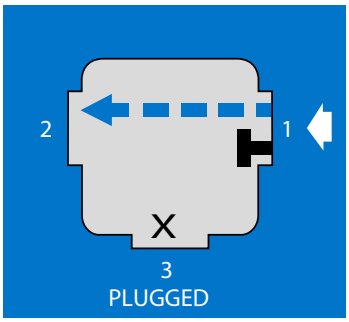
The 35 Series is a miniature 3 way or 2 way valve.
This valve provides extremely fast response, long life and high flow in a surprisingly small package.

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

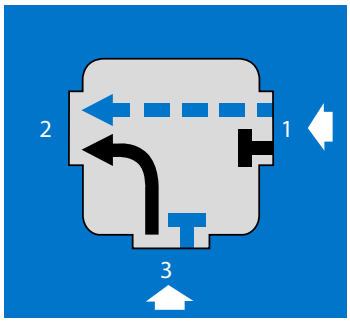
PIPING CHART FOR INDIVIDUAL MODELS



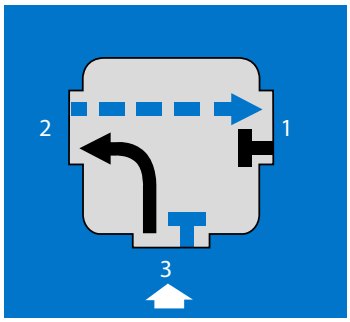
3 Way
Normally Closed



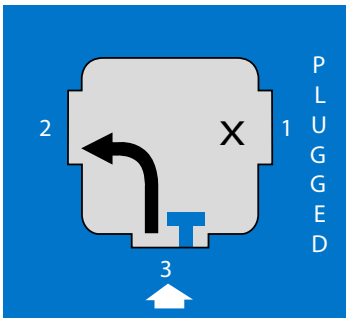
2 Way
Normally Closed



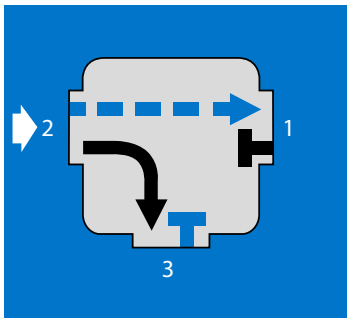
Selector



3 Way
Normally Open



2 Way
Normally Open



Divertor

Supply Operator De-Energized Operator Energized Plug X

MAC 35 Series - How to order - Body options

35A - X X X

BODY TYPE		PORT SIZE		VALVE FUNCTION / MANIFOLD TYPE	
0	No valve body	0	Manifold body only or regulator only	0	No manifold base
A	Individual inline	A	1/8'' NPT	A	Universal 3-way inline
B*	Manifold valve (universal poppet)	C	1/8'' BSPPL	B	3-way normally closed only inline/stacking
E*	Manifold valve (normally closed only poppet)	D	M5 (Metric) (stacking & manifold)	C	Normally closed stacking universal poppet
F*	Manifold valve with gage port (universal poppet)	E	1/8'' BSPTR	D	Normally open stacking universal poppet
G*	Manifold valve with gage port (normally closed only poppet)	F	Manifold with bottom cylinder port (1/8'' NPT)	E	Normally closed manifold
H	No body blank station	H	Manifold with bottom cylinder port (1/8'' BSPPL)	F	Normally open manifold
S	Stacking body	J	Manifold with bottom cylinder port (M5 (Metric))	J	Normally closed manifold with regulator & adj-knob
T	Stacking body with bottom inlet	K	Manifold with bottom cylinder port (1/8'' BSPTR)	K	Normally open manifold with regulator & adj-knob
				M	Regulator only with adj-knob

* If valves assembled on circuit bar: select "0" for port size and valve function manifold type (i.e.: B00).
Refer to page 22 for selection of circuit bar.

End plate kits (For each gang, one kit is required)

STACKING VALVES	
M35001-01P	1/4'' BSPPL

MANIFOLD VALVES	
M35003-01P	1/4'' BSPPL

Isolators

STACKING VALVES	
N-35001	Inlet & exhaust
N-35002	Inlet only
N-35003	Exhaust only

MANIFOLD VALVES	
N-35006	Inlet & exhaust
N-35007	Inlet only
N-35008	Exhaust only

Sections of a gang may be isolated permitting different pressures to be fed to either end of the gang, or to optional bottom inlet port.

MAC 35 Series - How to order - Solenoid options

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

VALVE CODE - D XX X - X XX ___
1 2 3 4

1. VOLTAGE

- D XX X - X XX	VOLTAGE
AA	120 V~/60 Hz - 110 V/50 Hz
AB	240 V~/60 Hz - 220 V/50 Hz
AC	24 V~/60 Hz - 24 V/50 Hz
AD	24 V~/60 Hz
AE	200 V~/60 Hz
AF	240 V~/50 Hz
AG	240 V~/50 Hz
DA	24 V=/5,4 W
DB	12 V=/5,4 W
DC	12 V=/7,5 W
DD	24 V=/7,3 W
DE	12 V=/12,7 W CLSF only
DF	24 V=/12,7 W CLSF only
DK	110 V=/4,7 W
DL	64 V=/6 W
DM	36 V=/5,3 W
DN	6 V=/6 W
DP	48 V=/5,8 W
DU	24 V=/6 W
EA	12 V=/6 W
FA	12 V=/1,8 W
FB	24 V=/1,8 W
FE	12 V=/2,4 W
FF	24 V=/2,4 W

2. FLYING LEADS / EXTERNAL PLUG-IN

- D XX X - X XX	FLYING LEADS (WIRE LENGTH)
A	45 cm - 18”
B	60 cm - 24”
C	90 cm - 36”
D	120 cm - 48”
E	180 cm - 72”
F	240 cm - 96”

- D XX X - X XX	EXTERNAL PLUG-IN
J	For external plug-in connector

3. MANUAL OPERATOR

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

4. ELECTRICAL CONNECTION

- D XX X - X XX	FLYING LEADS
BA	Flying leads
BK	Flying leads with protection diode
BL	Flying leads with protection varistor (M.O.V.)

- D XX X - X XX	EXTERNAL PLUG-IN
FM	Plug-in (for ECD & ECE bar)
FN	Plug-in with diode (for ECD & ECE bar)
FP	Plug-in with M.O.V. (for ECD & ECE bar)
*JB	DIN 43650 - Industrial type B connector (male + female)
*JD	DIN 43650 - Industr. type B conn. with light (male + female)
*JM	DIN 43650 - Industrial type B connector (male only)
KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industr. type C connector with protection diode
KC	DIN 43650 - Industr. type C conn. with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Industrial type C connector with light and protection diode
KF	DIN 43650 - Industrial type C connector with light and protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Industrial type C connector with protection diode (male only)
KL	DIN 43650 - Industrial type C connector with protection varistor (male only)
TA	Dual tabs with receptacles
TB	Dual tabs with protection diode
TD	Dual tabs with light
TE	Dual tabs with light and protection diode
TJ	Dual tabs (male only)
TK	Dual tabs (male only) with protection diode
TM	Dual tabs (male only) with light
TN	Dual tabs (male only) with light and protection diode

* Inline valves only

MAC 35 Series

MAC 35 Series - How to order - Electrical connection *(coil / connector configurations)*

BA*	Flying leads
BK*	Flying leads with protection diode
BL*	Flying leads with protection varistor (M.O.V.)

* From lead wire length options choose A - H

FM	Plug-in (for ECD & ECE bar)
FN	Plug-in with diode (for ECD & ECE bar)
FP	Plug-in with M.O.V. (for ECD & ECE bar)

JB	DIN 43650 - Industrial type B connector (male + female)
JD	DIN 43650 - Industrial type B connector with light (male + female)
JM	DIN 43650 - Industrial type B connector (male only)

11mm pin spacing

KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industrial type C connector with protection diode
KC	DIN 43650 - Industrial type C connector with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Industrial type C connector with light and protection diode
KF	DIN 43650 - Industrial type C connector with light and protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Industrial type C connector with protection diode (male only)
KL	DIN 43650 - Industrial type C connector with protection varistor (male only)

TA	Dual tabs with receptacles
TB	Dual tabs with protection diode
TD	Dual tabs with light
TE	Dual tabs with light and protection diode
TJ	Dual tabs (male only)
TK	Dual tabs (male only) with protection diode
TM	Dual tabs (male only) with light
TN	Dual tabs (male only) with light and protection diode

MAC 35 Series - How to order - Manifold circuit bar

Manifold non plug-in circuit bar

EBM 35A - XX X X - XX - 9

SPACING		CONFIGURATION		CYLINDER PORT SIZE		NUMBER OF STATIONS	
00	Standard for series (21 mm)	1	Side cylinder port	C	1/8'' BSPPL	1	One station
01	With JB, JD, JM connectors	2	Bottom cylinder port	D	M5 Metric	2	Two stations
02	For gages (40 mm)	3	For regulator with side cylinder port			3	Three stations
		4	For regulator with bottom cylinder port			...	Etc.

Accessories (to be ordered separately)

35A - 00X

BLANKING PLATES		PRESSURE REGULATOR	
M-35005	Regulator blanking plate	L	Slotted stem
E054	Valve blanking plate	M	Adjusting knob
		U	With locking stem

Manifold plug-in circuit bar

EC D 35A - XX X X - XX - 9

TYPE COMMON CONDUIT		SPACING		CONFIGURATION		CYLINDER PORT SIZE		LIGHT / TERMINAL STRIP	
D	Common conduit with plug-in option	00	21 mm	1	Side cylinder port	C	1/8'' BSPPL	A0	Standard (no light)
		01	26 mm	2	Bottom cylinder port	D	M5 Metric	AA	Standard with light (120 Volt)
		02	40 mm (min. for gages)	4	Bottom cylinder port for regulator with side regulator			AB	Standard with light (240 Volt)
		03	30 mm					AD	Standard with light (24 Volt)

Accessories (to be ordered separately)

35A - 00X

BLANKING PLATES		PRESSURE REGULATOR	
M-35005	Regulator blanking plate	L	Slotted stem
M35004	Valve blanking plate	M	Adjusting knob
		U	With locking stem

MAC

100 Series

3/2-way direct solenoid operated

Available configurations:	Individual inline, stacking body, individual base mounted and manifold base mounted
Port sizes:	1/8'', 1/4'' ports
Flow:	Up to 180 Nl/min (0.18 Cv)
Pressure range:	Vacuum to 10 bar (150PSI)
Function:	3/2 normally open, 3/2 normally closed, 3/2 universal
Operation:	Electrical

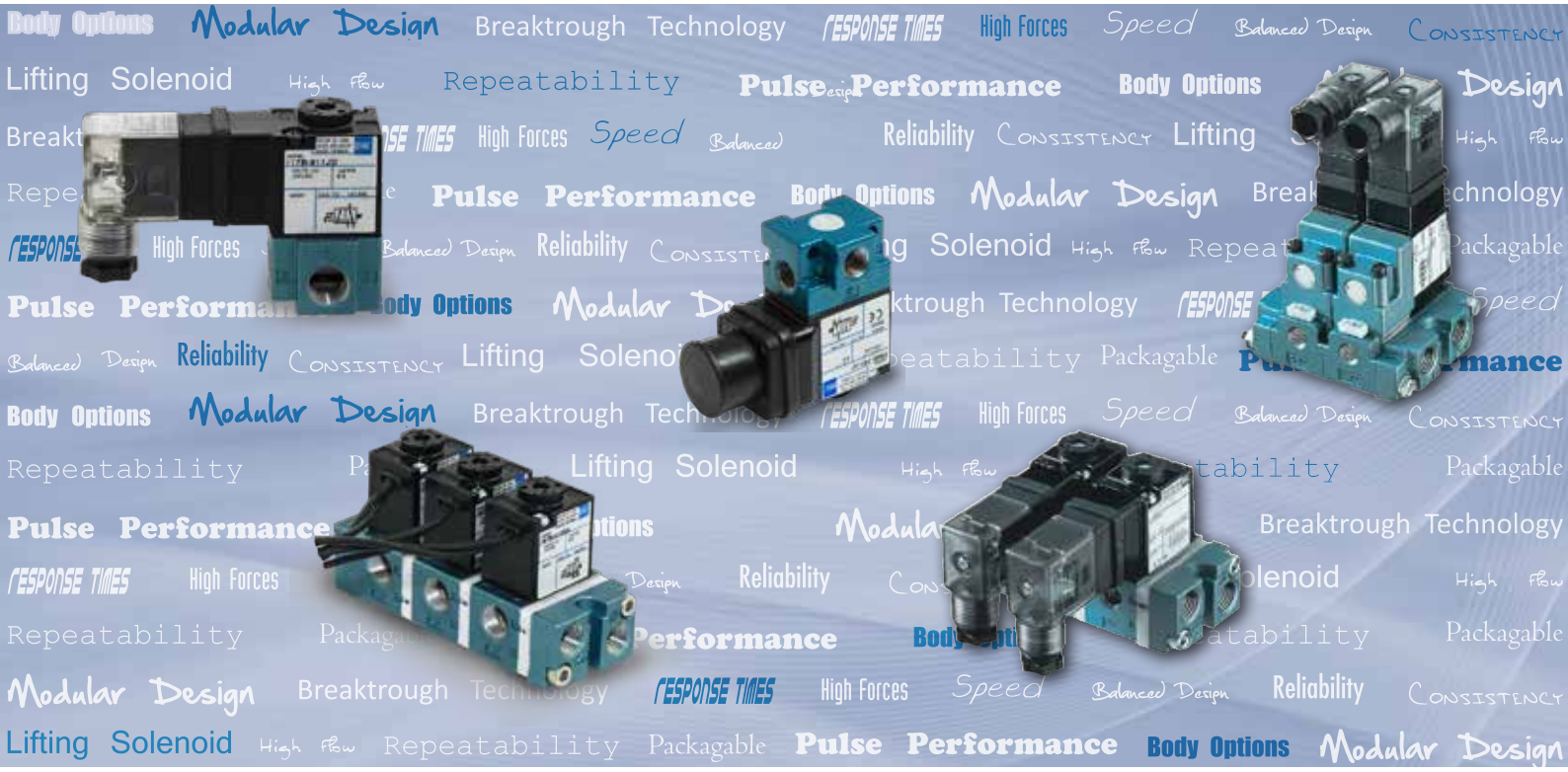


Table of contents

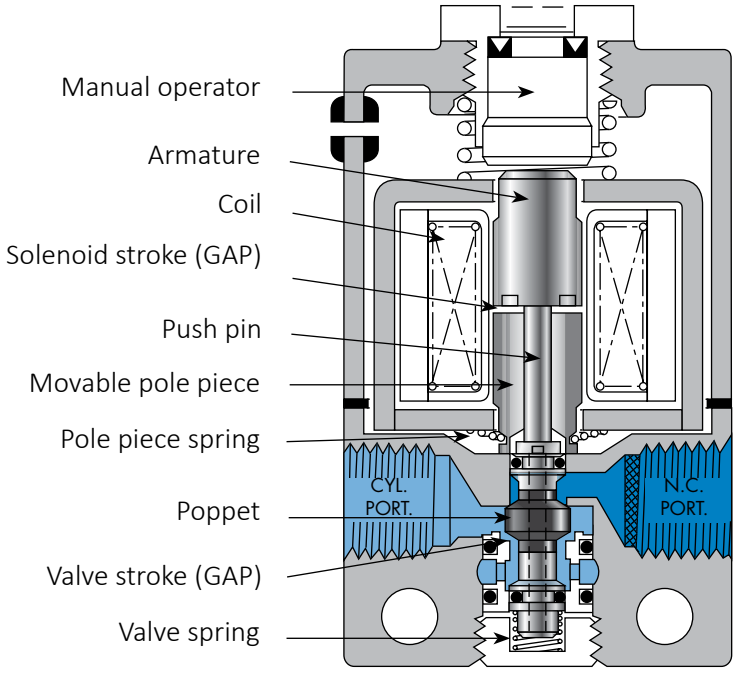
MAC 100 Series - Inline valve

3-way, 2 position, poppet

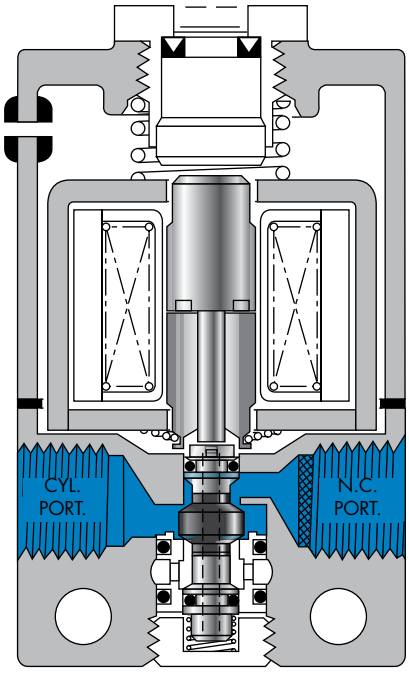
Flow up to 180 Nl/min (0.18 Cv)

- ◊ 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
- ◊ Repair kit available for the complete valve

De-energized N.C. Operation



Energized N.C. Operation



MAC 100 Series - Inline valve

Technical data

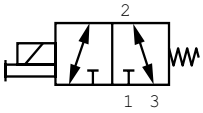
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	180 Nl/min (0.18 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 14.8 VA Holding: 10.9 VA = 1.0 to 17.0 W
Response times	24 V=/8.5 W Energize: 7 ms De-energize: 2 ms 120/60 Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

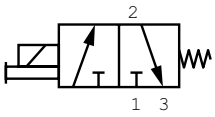
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

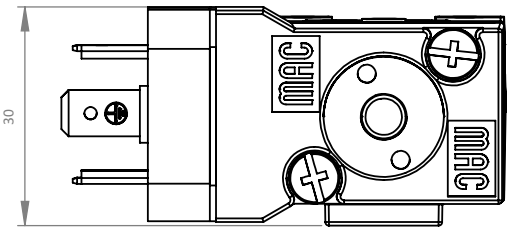
CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
Individual inline valve can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

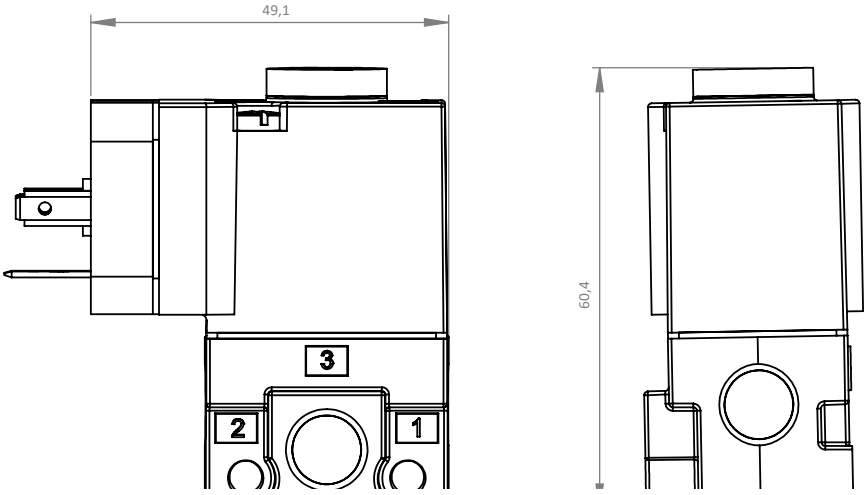
NORMALLY CLOSED ONLY MODELS
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

MAC 100 Series - Dimensions

100 Series - Inline valve

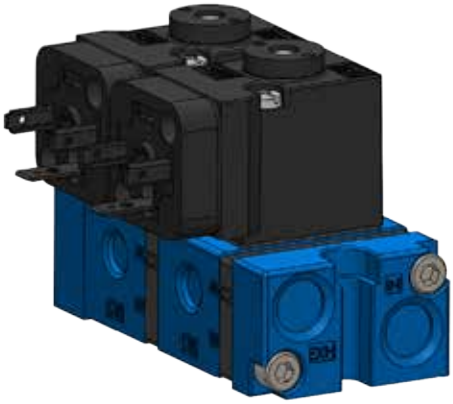
All dimensions are in mm





Check the warranty page 277

MAC 100 Series - Stacking valve

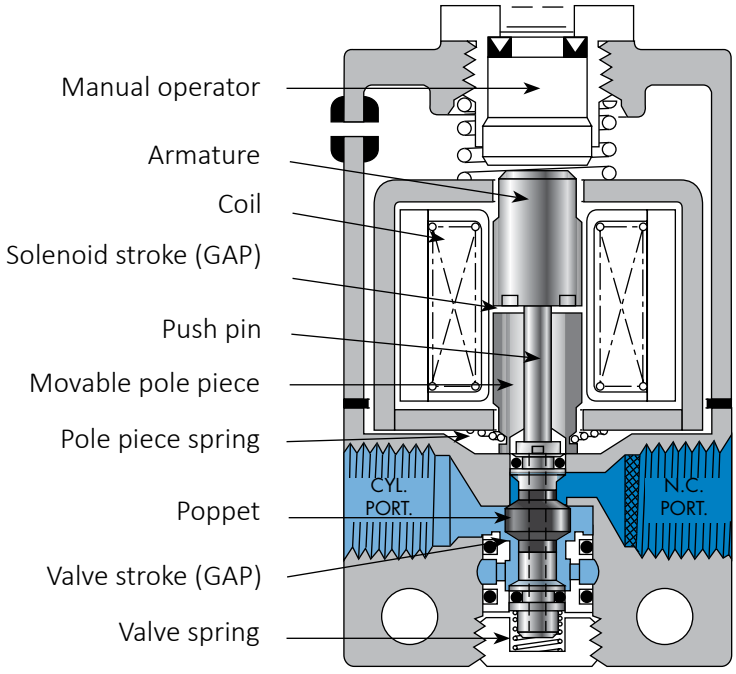


3-way, 2 position, poppet

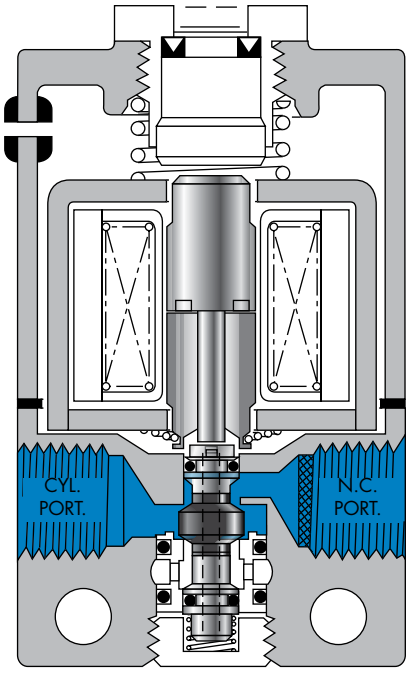
Flow up to 180 Nl/min (0.18 Cv)

- ◊ 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
- ◊ Repair kit available for the complete valve

De-energized N.C. Operation



Energized N.C. Operation



MAC 100 Series - Stacking valve

Technical data

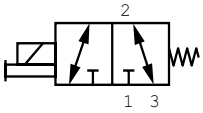
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	180 Nl/min (0.18 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 14.8 VA Holding: 10.9 VA = 1.0 to 17.1 W
Response times	24 V=/8.5 W Energize: 7 ms De-energize: 2 ms 120/60 Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

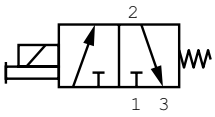
Single pressure models

3/2

Universal valve



Normally closed only valve



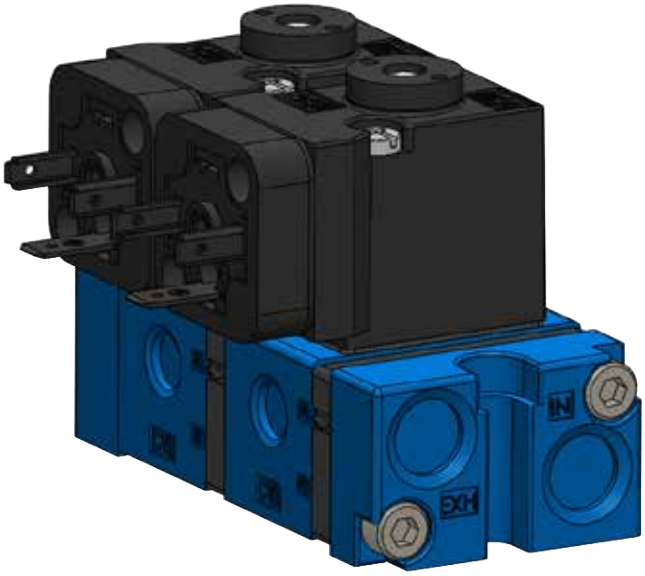
Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
Valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

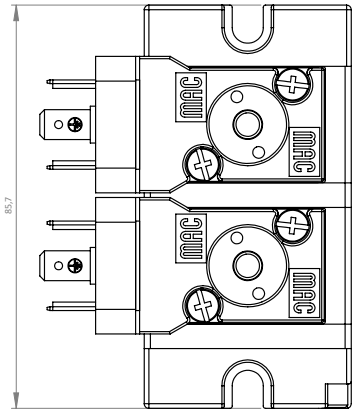
NORMALLY CLOSED ONLY MODELS
A single purpose Normally Closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

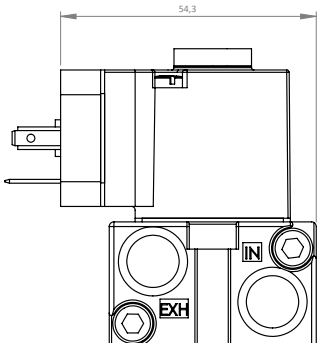
MAC 100 Series - Dimensions

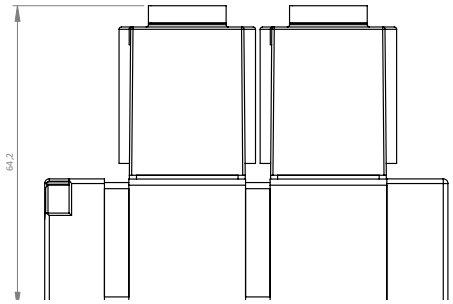
MAC 100 Series - Stacking valve



All dimensions are in mm



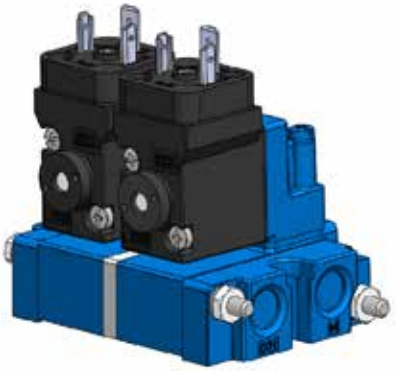




MAC 100 Series - Non plug-in valve with base

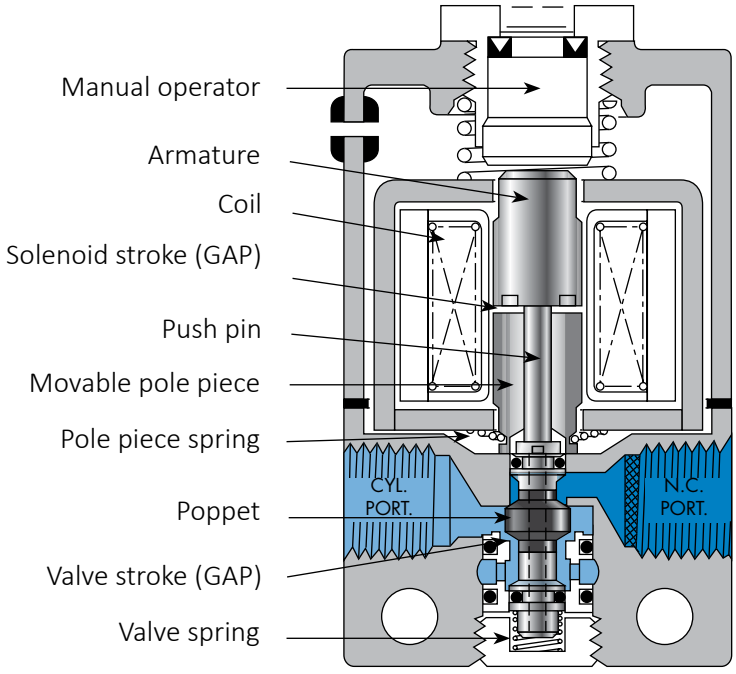
3-way, 2 position, poppet

Flow up to 180 Nl/min (0.18 Cv)

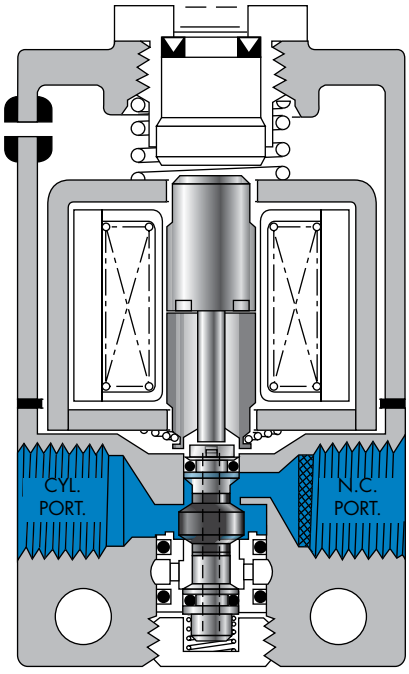


- ◊ Short stroke with high flow
- ◊ Balanced poppet, immune to variations of pressure allowing pressure and vacuum operation
- ◊ Bonded poppet with minimum friction, shifting in a glass-like finished bore
- ◊ Wiping effect, valve immune to contamination
- ◊ Long service life
- ◊ Direct operated valve
- ◊ 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
- ◊ Repair kit available for the complete valve

De-energized N.C. Operation



Energized N.C. Operation



MAC 100 Series - Non plug-in valve with base

Technical data

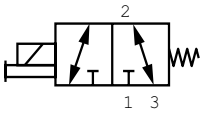
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	180 Nl/min (0.18 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 14.8 VA Holding: 10.9 VA = 1.0 to 17.0 W
Response times	24 V=/8.5 W Energize: 7 ms De-energize: 2 ms 120/60 Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

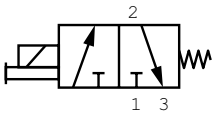
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

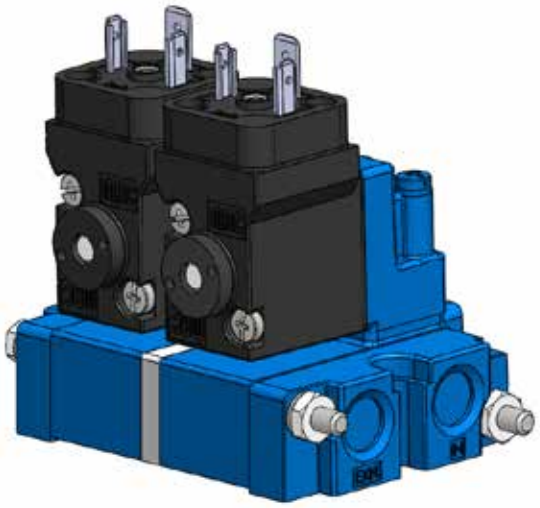
Valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (universal only).

NORMALLY CLOSED ONLY MODELS

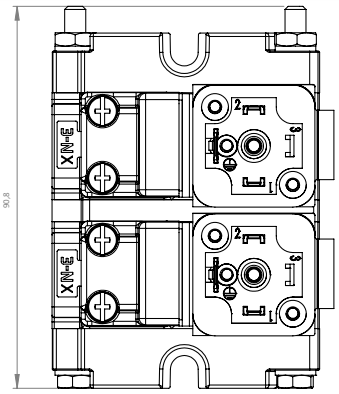
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

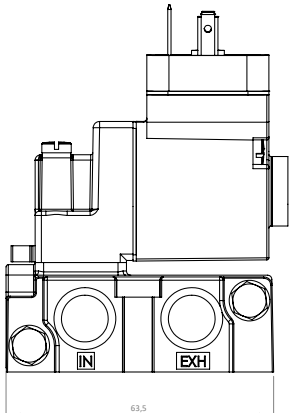
MAC 100 Series - Dimensions

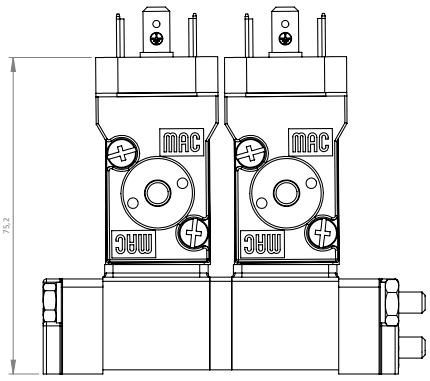
MAC 100 Series - Non plug-in valve with base



All dimensions are in mm







MAC 100 Series - Universal 3/2 & 2/2

APPLICATION CONVERSION PROCEDURE:

INDIVIDUAL MODELS

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

STACKING BODY MODELS

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

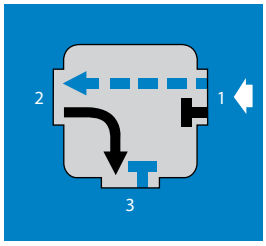
N.C. ONLY MODELS

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.

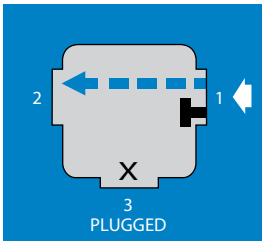
MANIFOLD BASE MODELS

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

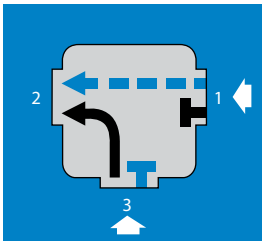
PIPING CHART FOR INDIVIDUAL MODELS



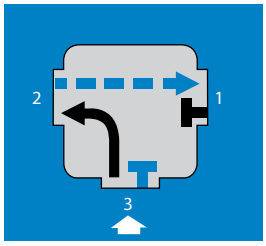
3-Way Normally Closed



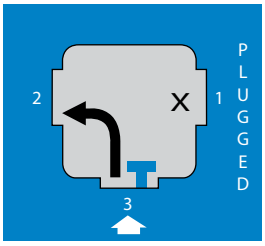
2-Way Normally Closed



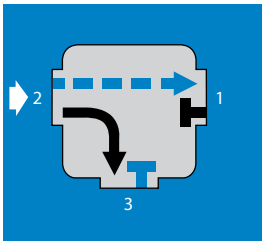
Selector



3-Way Normally Open



2-Way Normally Open



Divertor

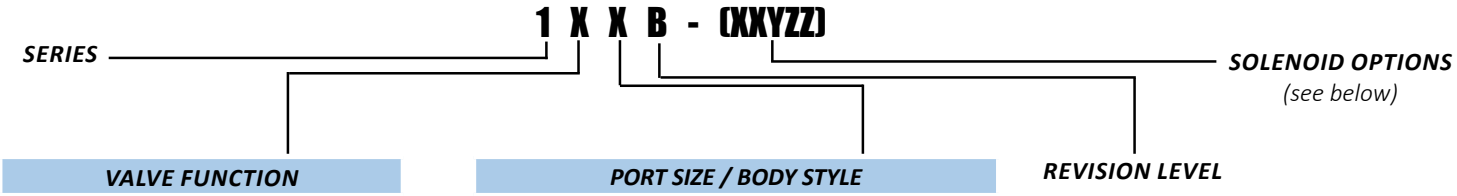
Supply

Operator De-Energized

Operator Energized

MAC 100 Series - How to order

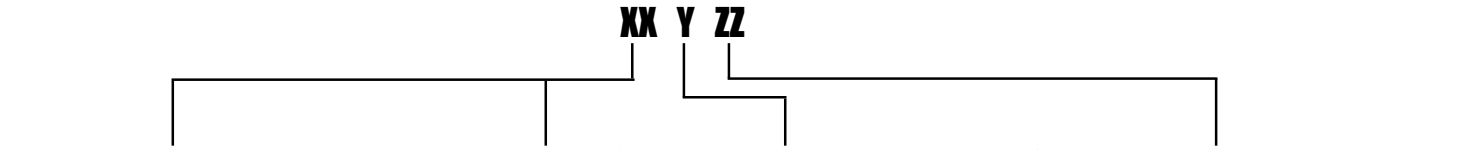
Body options



VALVE FUNCTION	
1	Universal individual inline
2	2-way normally closed manifold
3	3-way universal manifold
4	2-way normally open manifold
6	Normally closed only individual inline
7	Normally closed only manifold
8	Stacking models

PORT SIZE / BODY STYLE	
0	Manifold valve less base
1	1/8" NPTF individual inline or universal stacking
2	1/8" NPTF manifold
3	1/4" NPTF inline or universal stacking
4	1/8" NPTF stacking 3-way normally closed only
5	1/4" NPTF stacking 3-way normally closed only
6	1/8" BSPP inline or universal stacking or manifold
7	1/4" BSPP inline or universal stacking
8	1/8" BSPP stacking 3-way normally closed only
9	1/4" BSPP stacking 3-way normally closed only

Solenoid options



AC VOLTAGE	
11	120 V~/60 Hz - 110 V~/50 Hz
12	240 V~/60 Hz - 220 V~/50 Hz
22	24 V~/60 Hz - 24 V~/50 Hz
39	240 V~/50 Hz

DC VOLTAGE	
50	24 V=/6 W
55	12 V=/6 W
57	12 V=/2,5 W
59	24 V=/2,5 W
60	12 V=/8,5 W
61	24 V=/8,5 W

MANUAL OVERRIDE	
0	No operator
1	Non-locking recessed (standard)
2	Locking recessed
3	Non-locking extended
4	Locking extended

ELECTRICAL CONNECTION	
AA	Wiring box with 1/2" NPS conduit
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPT conduit
NA	CA with ground wire
MA	Electrical common conduit
MB	Electrical common conduit
RA	3/8" NPS conduit

* For other AC & DC voltages and electrical connections, see pages 14 and 15.

MAC 100 Series - References

Codification table for voltages / Manual override / Electrical connection

VALVE CODE **- XX Y ZZ (-VV)**
1 2 3 4

1. VOLTAGE

- XX	Y	ZZ	VOLTAGE
11			120 V~/60 Hz - 110 V~/50 Hz
12			240 V~/60 Hz - 220 V~/50 Hz
13			100 V~/60 Hz - 100 V~/50 Hz
15			200 V~/60 Hz - 200 V~/50 Hz
16			10 V~/60 Hz
20			6 V~/60 Hz
21			12 V~/50 Hz - 12 V~/60 Hz
22			24 V~/60 Hz - 24 V~/50 Hz
23			32 V~/60 Hz - 32 V~/50 Hz
24			48 V~/60 Hz - 42 V~/50 Hz
26			380 V~/50 Hz, 440 V~/50 Hz -440 V~/60 Hz, 480 V~/60 Hz-CLSF
29			220 V~/60 Hz
34			127 V~/50 Hz - 120 V~/50 Hz
35			48 V~/50 Hz
36			16 V~/60 Hz
39			240 V~/50 Hz
B1			24 V~/50 Hz
50			24 V=/6 W
51			24 V=/4 W
54			12 V=/4 W
55			12 V=/6 W
57			12 V=/2,5 W
59			24 V=/2,5 W
60			12 V=/8,5 W
61			24 V=/8,5 W
64			6 V=/6 W
65			32 V=/7 W
66			48 V=/5,8 W
67			64 V=/7,5 W
68			120 V=/6,4 W
69			220 V=/8,7 W - 250 V=/11,2 W CLSF
75			90 V=/8,8 W CLSF
76			100 V=/6,9 W CLSF
84			125 V=/10,9 W CLSF
87			24 V=/17,1 W CLSF
88			12 V=/17,4 W CLSF
89			36 V=/18,8 W CLSF
90			28 V=/8,2 W
91			6 V=/10,6 W CLSF
92			190 V=/6,5 W
94			3 V=/7 W
95			38 V=/6,4 W
A1			24 V=/1 W
A2			12 V=/1 W
A3			9 V=/1 W

MOD. DD01 : Protection diode (DC) - Max. 8,5 W / MOD. MOV1 : Protection varistor (AC&DC) - Max. 8,5 W

2. MANUAL OVERRIDE

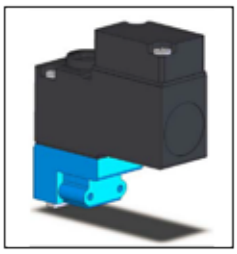
- XX	Y	ZZ	MANUAL OPERATOR
	0		No operator
	1		Non-locking recessed (standard)
	2		Locking recessed
	3		Non-locking extended
	4		Locking extended

3. ELECTRICAL CONNECTION

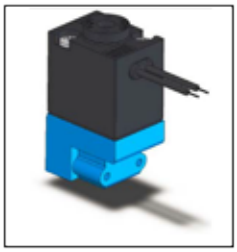
- XX	Y	ZZ	ELECTRICAL CONNECTION
		AA	Wiring box with 1/2" NPS conduit
		BA	Flying leads
		CA	1/2" NPS conduit
		CC	1/2" NPT conduit
		CD	20mm conduit
		CG	PG-11 conduit
		CH	13.5 conduit
		FA	2 PIN military type
		GA	3 PIN military type
		HA	AA with ground wire
		JA*	Square connector
		JB	Rectangular connector
		JC*	Square connector with light
		JD	Rectangular connector with light
		JJ	Square connector, male only
		JM	Rectangular connector, male only
		MA	Electrical common conduit (manifold models)
		MB	Electrical common conduit (stacking models)
		NA	CA with ground wire
		NC	CC with ground wire
		ND	½" NPT conduit with ground wire
		PA	Pico connector
		RA	3/8" NPS conduit

* *Not to be used with manifold mounting*

MAC 100 Series - Codification of valve solenoid (coil / connector configurations)

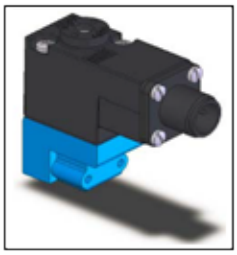


AA	Wiring box with 1/2" NPS conduit
HA	AA with ground wire

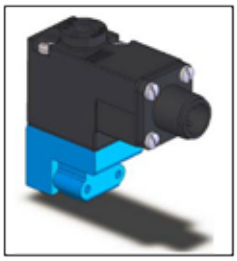


BA	Flying leads

CA	1/2" NPS conduit
CC	1/2" NPT conduit
CD	20 mm conduit
CG	PG-11 conduit
CH	13.5 conduit

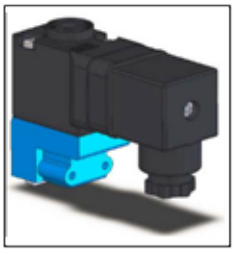


FA	2 PIN military type



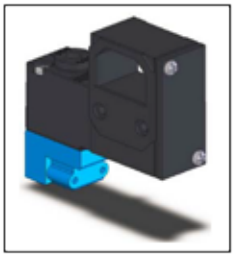
GA	3 PIN military type

JB	Rectangular connector
JD	Rectangular connector with light
JM	Rectangular connector, male only



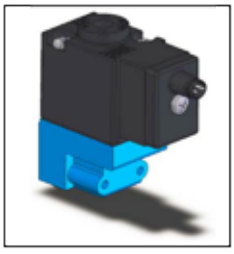
JA*	Square connector
JC*	Square connector with light
JJ	Square connector, male only

* *Not to be used with manifold mounting*

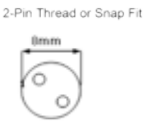


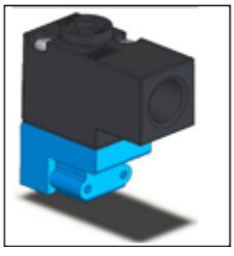
MA	Electrical common conduit (manifold models)
MB	Electrical common conduit (stacking models)

NA	CA with ground wire
NC	CC with ground wire
ND	½" NPT conduit with ground wire



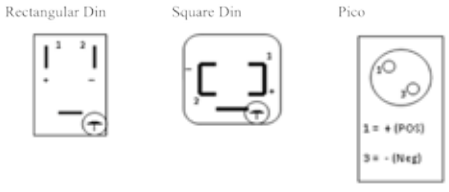
PA	Pico connector





RA	3/8" NPS conduit

Standard Wiring:



MAC 100 Series - Spare parts

PART REFERENCE	DESCRIPTION
102	Manifold base, 1/8" NPTF threads
106	Manifold base, 1/8" BSPP threads
16225	Pressure seal, (2x) with manifold selector plate
16226	Pressure seal, between manifold bases, (1x) with base
16404	Gasket for plate 28345
19542	Tie rod for manifold base, 4 valve length
19546	Tie rod, (2x) with manifold body
19674	Tie rod, (2x) with stacking valve
21167	Return spring, universal, > 4 W
21198	Return spring, normally closed only, > 4 W
24118	Selection plate A2-7009 no seal
28325	Filter screen for "IN"- 1/8" port
28326	Filter screen for "IN"- 1/4" port
28345	Isolation exhaust plate for 100 series stacking
30283	Standard plastic retainer plug, universal
30284	Standard plastic retainer plug, normally closed only
32180	Mounting screw manifold valve to base, (2x) with base
32184	Solenoid mounting screw, black, (2x) with D1-XXYZZ
32732	Washer, (4x) with manifold kit
32811	Hexagonal nut, (2x) with manifold kit
32812	Hexagonal bolt, (2x) with manifold kit
35206	Mounting screw (yellow), (2x) with solenoid & cover assembly
116B-01	Inline body assembly, universal, > 4W, 1/8" BSPP threads
117B-01	Inline body assembly, universal, > 4W, 1/4" BSPP threads
120B-01	Manifold body assembly, universal, > 4W, 2-way normally closed function plate
130B-01	Pilot valve, without operator (> 4 W)
140B-01	Manifold body assembly, universal, > 4W, 2-way normally open function plate
166B-01	Inline body assembly, normally closed only, > 4W, 1/8" BSPP threads
167B-01	Inline body assembly, normally closed only, > 4W, 1/4" BSPP threads
170B-01	Manifold body assembly, 3-way normally closed only, > 4W
17905-01	O-ring seal, (2x) with retainer
17925-01	D-ring, (2x) on standard poppet assembly, (1x) for normally closed only

MAC 100 Series - Spare parts

PART REFERENCE	DESCRIPTION
186B-01	Stacking body assembly, universal, > 4W, 1/8" BSPP threads
187B-01	Stacking body assembly, universal, > 4W, 1/4" BSPP threads
188B-01	Stacking body assembly, 3-way normally closed only, > 4W, 1/8" BSPP threads
189B-01	Stacking body assembly, 3-way normally closed only, > 4W, 1/4" BSPP threads
A2-5004-01P	Manifold end plate kit, 1/4" BSPP threads
A2-7007	2-way normally closed function plate assembly
A2-7008	2-way normally open function plate assembly
A2-7009	3-way NC/NO function plate assembly
B4-9003	Tie rod, (2x) with manifold end plate kit
C1-XXAA	Coil, standard lead length (AA); for (XX) see 100 series solenoid options
C8-XXAA	CLSF coil (CLSF price adder included)
D1-XXAA	Solenoid assembly, without cover; for (XX) see 100 series solenoid options
D1-XXYZZ	Solenoid & cover assembly, with seal and black screws; for (XXYZZ) see 100 series solenoid options
D8-XXAA	D1-XXAA, with CLSF coil (CLSF adder included)
D8-XXYZZ	D1-XXYZZ, with CLSF coil (for valves with CLSF modification)
D8-XXYZZ1	D1-XXYZZ1, with CLSF coil
E-01021-00	Manual operator, inoperative
E-01021-01	Manual operator, non-locking/recessed
E-01021-02	Manual operator, locking/recessed
E-01021-03	Manual operator, non locking/extended
E-01021-04	Manual operator, locking/extended
E144	Blanking plate for manifold bar
K-00001-01	Repair kit, universal model, > 4 W
K-01002-01	Repair kit, normally closed only model, > 4 W
M-01001-01P	Stacking end plate kit, 1/4" BSPP threads
R-01001	Retainer assembly - universal
R-01002	Retainer assembly - normally closed only
S-01001	Poppet assembly - universal
S-01002	Poppet assembly - normally closed only

MAC 200 Series

MAC

200 Series

3/2-way direct solenoid operated

Available configurations:	Individual inline, individual base mounted and manifold base mounted
Port sizes:	1/8'', 1/4'' ports
Flow:	Up to 500 Nl/min (0.5 Cv)
Pressure range:	Vacuum to 10 bar (150 PSI)
Function:	3/2 normally open, 3/2 normally closed, 3/2 universal, 2/2
Operation:	Electrical

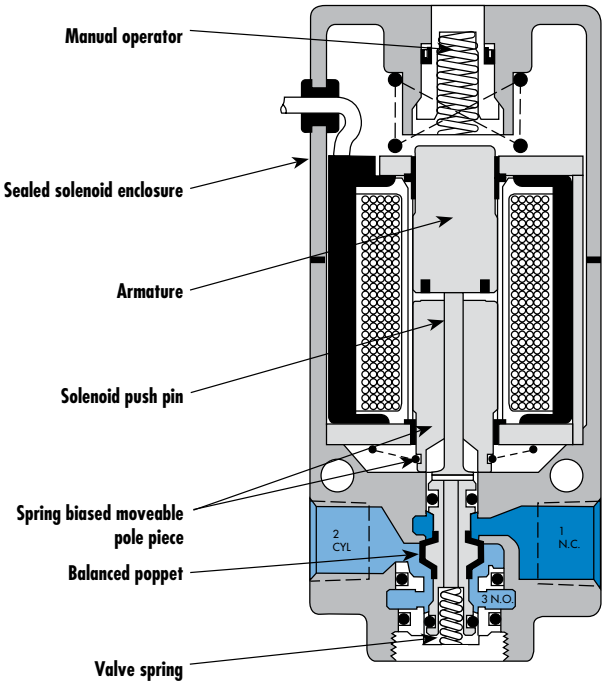
Table of contents

MAC 200 Series - Inline valve

3-way, 2 position, poppet

Flow up to 500 Nl/min (0.5 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
- ◊ Repair kit available for the complete valve



MAC 200 Series - Inline valve

Technical data

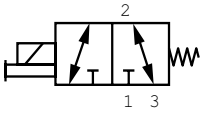
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	500 Nl/min (0.5 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 33 VA Holding: 19.7 VA = 1.0 to 24.0 W
Response times:	24 V =/8.5 W Energize: 15 ms De-energize: 5 ms

Solenoid pilot operated valve

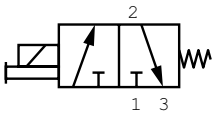
Single pressure models

3/2

Universal valve



Normally closed only valve



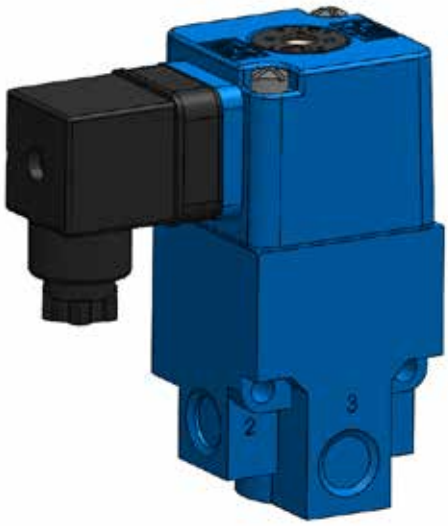
Notes:

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).

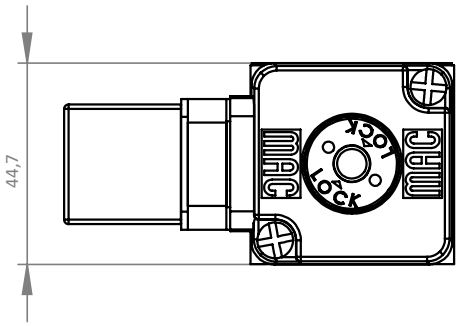
NORMALLY CLOSED ONLY MODELS
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

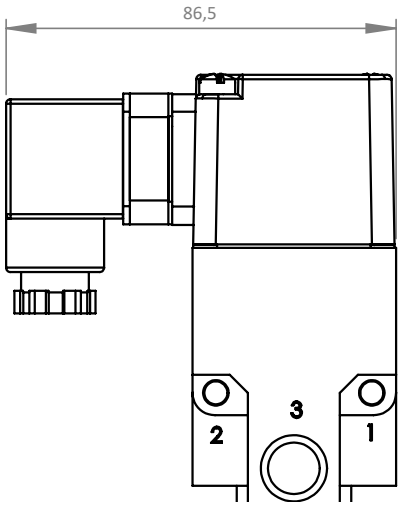
MAC 200 Series - Dimensions

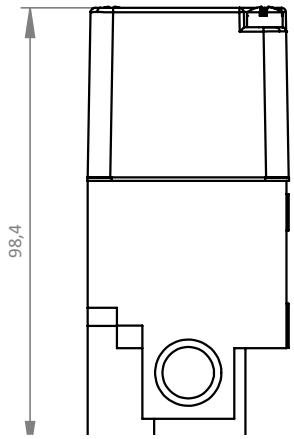
200 Series - Inline valve



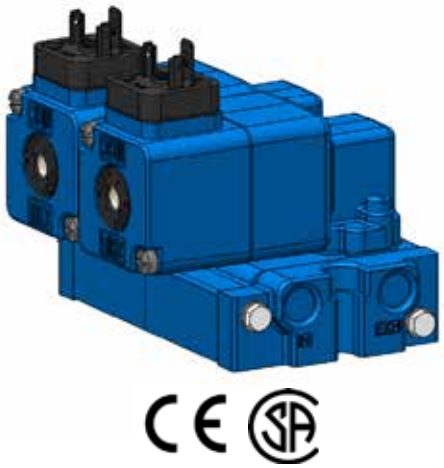
All dimensions are in mm







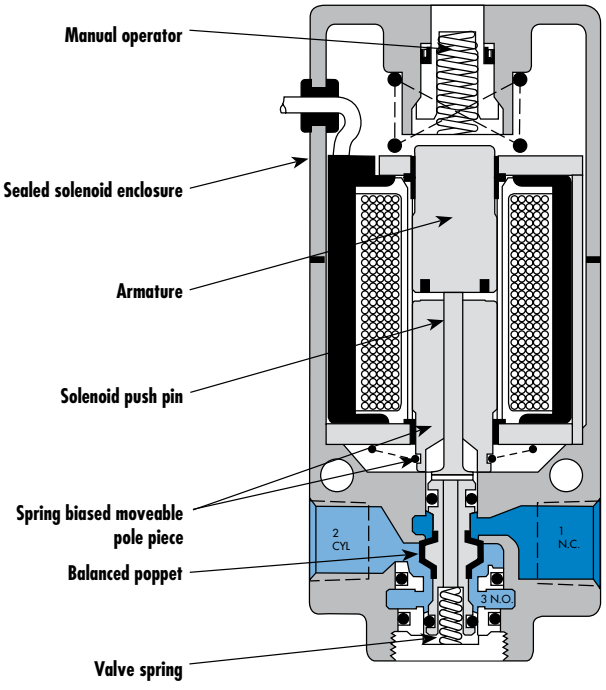
MAC 200 Series - Non plug-in valve with base



3-way, 2 position, poppet

Flow up to 500 Nl/min (0.5 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
- ◊ Repair kit available for the complete valve



MAC 200 Series - Non plug-in valve with base

Technical data

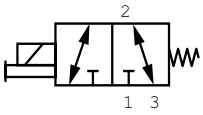
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	500 Nl/min (0.5 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 33 VA Holding: 19.7 VA = 1.0 to 24.0 W
Response times:	24 V =/8.5 W Energize: 7 ms De-energize: 2 ms

Solenoid pilot operated valve

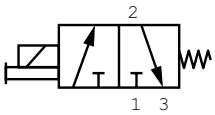
Single pressure models

3/2

Universal valve



Normally closed only valve



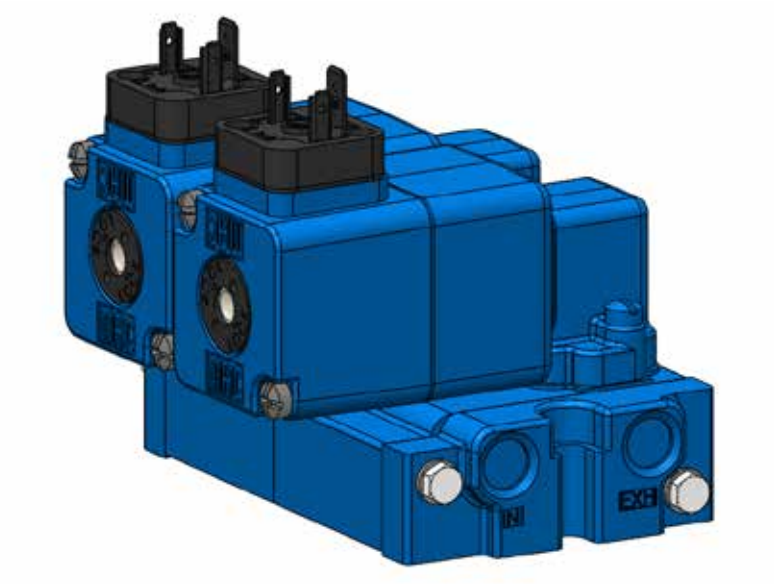
Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN
Valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (individual only).

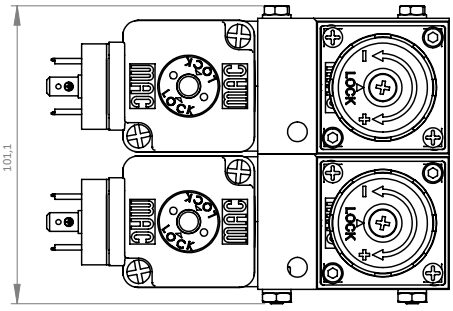
NORMALLY CLOSED ONLY MODELS
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

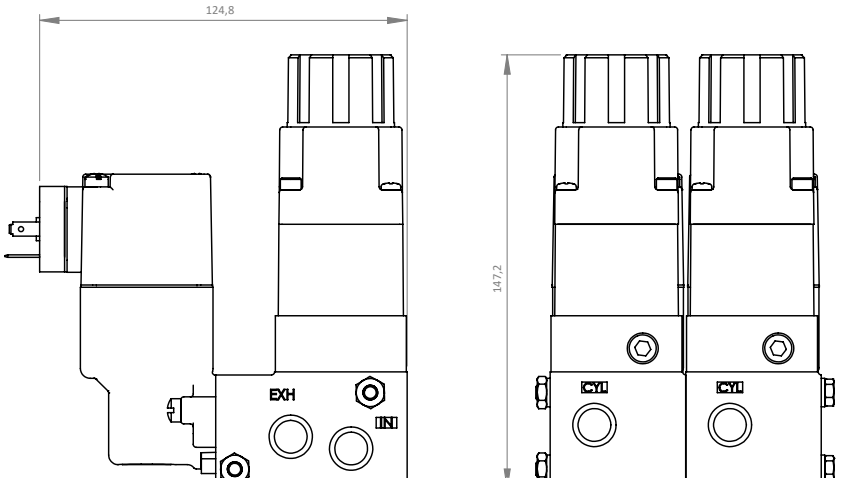
MAC 200 Series - Dimensions

MAC 200 Series - Non plug-in valve with base



All dimensions are in mm



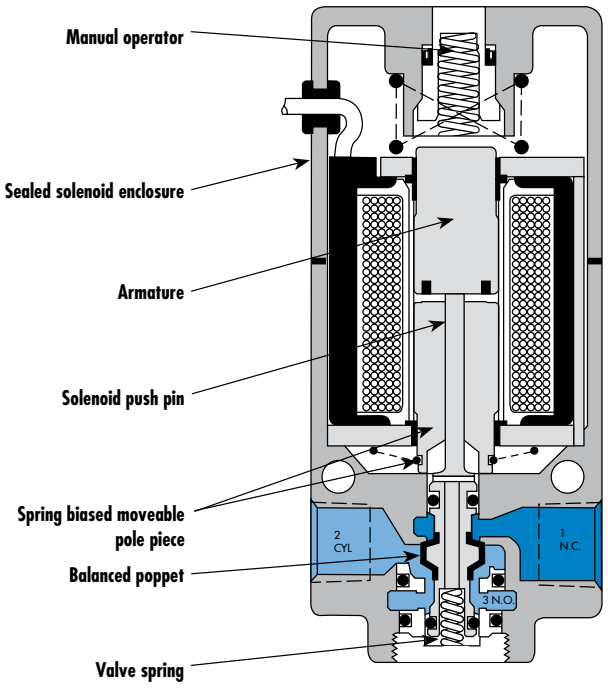


MAC 200 Series - Manifold mounting sub-base with pressure regulators

3-way, 2 position, poppet

Flow up to 500 Nl/min (0.5 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
- ◊ Repair kit available for the complete valve



MAC 200 Series - Manifold mounting sub-base with pressure regulators

Technical data

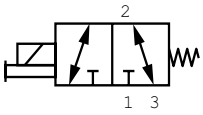
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 10 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 60°C
Flow (at 6 bar, ΔP=1bar):	500 Nl/min (0.5 Cv)
Coil:	Epoxy encapsulated - Class A wires - 100% ED (mod 0449)
Voltage range:	-15% to +10% of nominal voltage
Protection:	IP65
Power:	~ Inrush: 33 VA Holding: 19.7 VA = 1.0 to 24.0 W
Response times:	24 V =/8.5 W Energize: 7 ms De-energize: 2 ms

Solenoid pilot operated valve

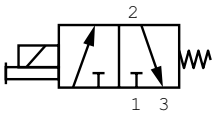
Single pressure models

3/2

Universal valve



Normally closed only valve



Notes:

CHANGING FROM NORMALLY CLOSED TO NORMALLY OPEN

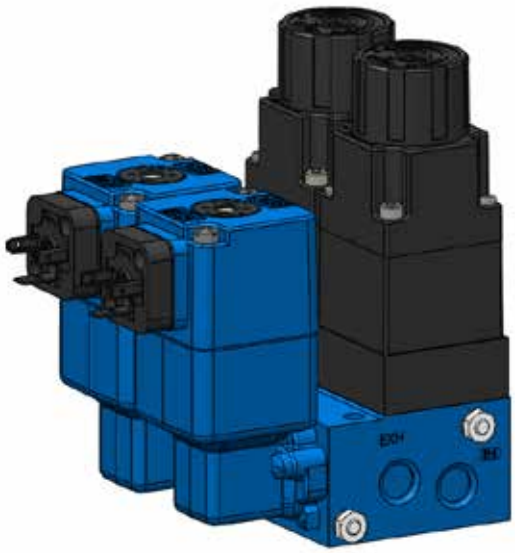
Valves can be changed from normally closed to normally open by connecting the inlet to port 3 instead of port 1 (individual only).

NORMALLY CLOSED ONLY MODELS

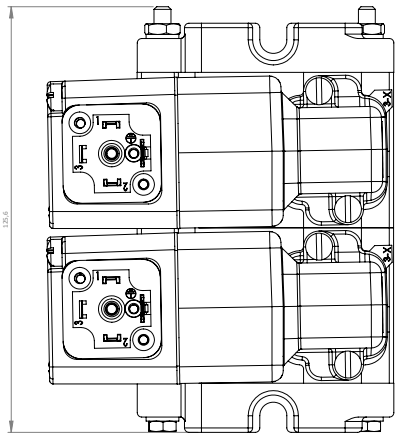
A single purpose normally closed only model is available for those applications where a greater tolerance for heavy concentrations of water, compressor products and other air line contaminants is desired.

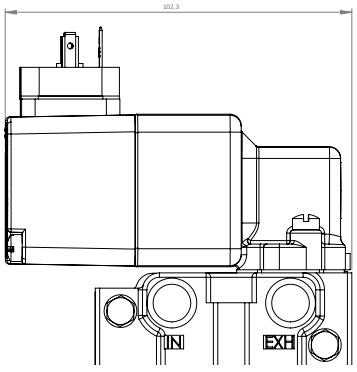
MAC 200 Series - Dimensions

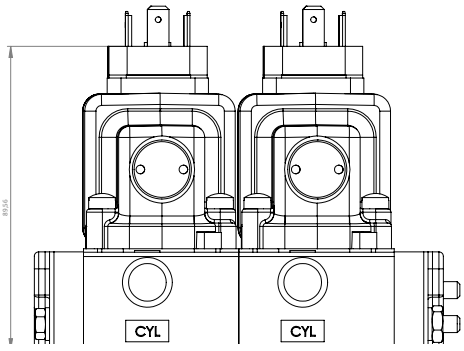
MAC 200 Series - Manifold mounting sub-base with pressure regulators



All dimensions are in mm







MAC 200 Series - Universal 3/2 & 2/2

APPLICATION CONVERSION PROCEDURE:

INDIVIDUAL MODELS

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

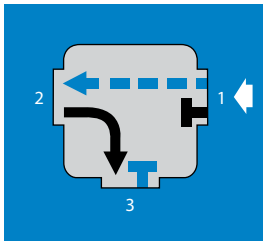
N.C. ONLY MODELS

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.

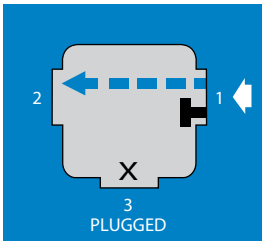
MANIFOLD BASE MODELS

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

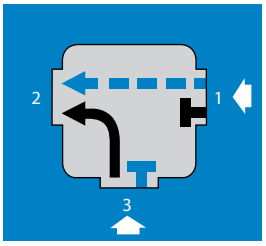
PIPING CHART FOR INDIVIDUAL MODELS



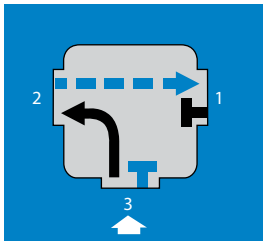
3-Way Normally Closed



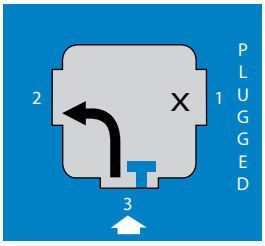
2-Way Normally Closed



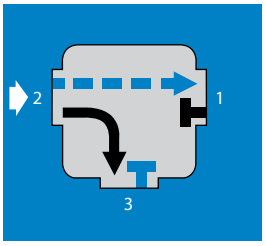
Selector



3-Way Normally Open



2-Way Normally Open



Divertor

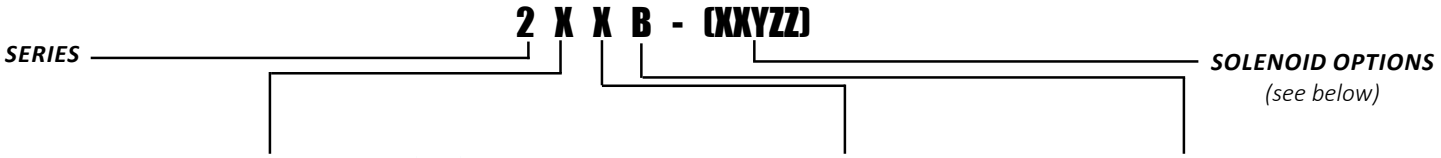
Supply

Operator De-Energized

Operator Energized

MAC 200 Series - How to order

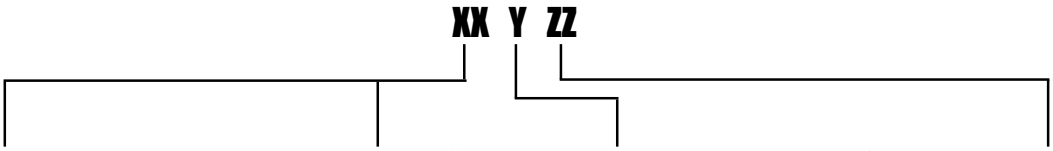
Body options



VALVE FUNCTION	PORT SIZE / BODY STYLE	REVISION LEVEL
2 Universal 2-way or 3-way individual inline	**0** Universal manifold less base	
5 Universal 3-way manifold base mounted	**1** Normally closed only manifold with 1/4" NPTF manifold base, integral pressure regulator, common outlet (cascade)	
6 Universal 2-way manifold base mounted	**2** Universal or normally closed only manifold with 1/4" NPTF manifold base, integral pressure regulator, individual outlet	
7 Normally closed only 2-way or 3-way individual inline	**4** Individual inline, 1/8" NPTF ports	
8 Normally closed only 2-way or 3-way manifold base mounted	**5** Individual inline, 1/4" NPTF ports	
	6 Manifold base mounted, 1/8" NPTF	
	7 Manifold base mounted, 1/4" NPTF	
	8 Manifold base mounted, 1/8" NPTF (solenoid for hazardous locations)	
	9 Manifold base mounted, 1/4" NPTF (solenoid for hazardous locations)	

* For BSPP ports, add MOD 0005 after valve code (e.g. 225B-111BP MOD-0005).

Solenoid options



AC VOLTAGE	DC VOLTAGE	MANUAL OVERRIDE	ELECTRICAL CONNECTION
11 120 V~/60 Hz - 110 V~/50 Hz	**50** 24 V=/6.0 W	**0** No operator	**AA** Wiring box with 1/2" NPS conduit
12 240 V~/60 Hz - 220 V~/50 Hz	**52** 24 V=/2.5 W	**1** Non-locking recessed (standard)	**BA** Flying leads
22 24 V~/60 Hz - 24 V~/50 Hz	**53** 24 V=/1.0 W	**2** Locking recessed	**CA** 1/2" NPS conduit
25 240 V~/50 Hz	**55** 12 V=/6.0 W	**3** Non-locking extended	**CC** 1/2" NPT conduit
	60 12 V=/8.5 W	**4** Locking extended	**NA** Hazardous locations
	61 24 V=/8.5 W		
	69 220-250 V=/11.3 W		
	78 24 V=/24.0 W		

* For other AC & DC Voltages and electrical connections, see pages 14 and 15.

MAC 200 Series - References

Codification table for voltages / Manual override / Electrical connection

VALVE CODE **- XX Y ZZ (-VV)**
1 2 3 4

1. VOLTAGE

- XX Y ZZ	VOLTAGE
11	120 V~/60 Hz - 110 V~/50 Hz - 24 V=/6 W
12	240 V~/60 Hz - 220 V~/50 Hz
13	100 V~/60 Hz - 100 V~/50 Hz
14	200 V~/60 Hz - 200 V~/50 Hz
20	6 V~/60 Hz
21	12 V~/60 Hz
22	24 V~/60 Hz - 24 V~/50 Hz
23	32 V~/60 Hz - 32 V~/50 Hz
24	48 V~/60 Hz - 42 V~/50 Hz
25	240 V~/50 Hz
26	480 V~/60 Hz - 440 V~/50 Hz
27	127 V~/60 Hz
28	415 V~/50 Hz
29	220 V~/60 Hz
30	380 V~/50 Hz
31	550 V~/60 Hz - 550 V~/50 Hz
32	120 V~/60 Hz - 110 V~/50 Hz
33	600 V~/60 Hz
34	127 V~/50 Hz
35	48 V~/50 Hz
50	24 V=/6 W
51	24 V=/4,5 W
52	24 V=/2,5 W
53	24 V=/1 W
55	12 V=/6 W
57	12 V=/2,5 W
58	48 V=/2,5 W
60	12 V=/9,5 W
61	24 V=/8,5 W
64	6 V=/8,5 W
65	32 V=/10 W
66	48 V=/11,5 W
67	64 V=/10,5 W
68	120 V=/12,3 W
69	250 V=/9,2 W
71	8 V=/8,2 W
72	24 V=/12 W
73	198 V=/10 W
74	72 V=/11,3 W
75	90 V=/11,3 W
76	100 V=/9 W
77	220 V=/10 W - 230 V=/1,6 W
78	24 V=/24 W CLSF
80	55 V=/10,6 W CLSF
82	170 V=/11,1 W

1. VOLTAGE

83	15 V=/8,1 W
84	125 V=/10 W
86	36 V=/11 W
93	12 V=/24 W CLSF

2. MANUAL OVERRIDE

- XX Y ZZ	MANUAL OPERATOR
0	No operator
1	Non-locking recessed (standard)
2	Locking recessed
3	Non-locking extended
4	Locking extended

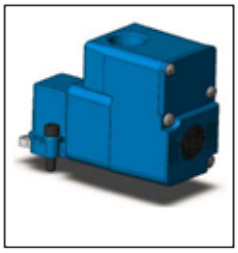
3. ELECTRICAL CONNECTION

- XX Y ZZ	ELECTRICAL CONNECTION
AA	Wiring box with 1/2" NPS conduit
AK	Wiring box with PG-16 conduit threads
BA	Flying leads
CA	1/2" NPS conduit
CC	1/2" NPT conduit
CD	20 mm conduit
CK	PG-16 conduit threads
FA	2 PIN military type
GA	3 PIN military type
HA	AA with ground wire
JA*	Square connector
JC	Square connector with light
JJ	Square connector, male only
NA	CA with ground wire
NC	CC with ground wire

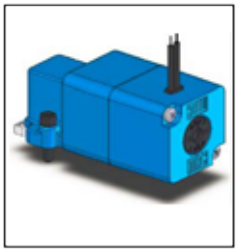
4. WIRE LENGTH (BA - FLYING LEADS ONLY)

- XX Y ZZ (-VV)	WIRE LENGTH
AA	45 cm - 18”
AB	60 cm - 24”
AD	90 cm - 36”
AE	120 cm - 48”
AF	180 cm - 72”
AG	15 cm - 6”
AR	30 cm - 12”
AU	305 cm - 120”
BA	152 cm - 60”
BB	366 cm - 144”

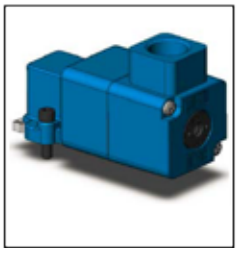
MAC 200 Series - Codification of valve solenoid (coil / connector configurations)



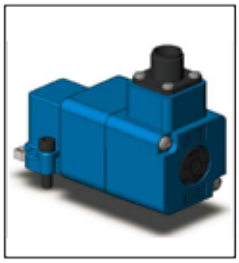
AA	Wiring box with 1/2" NPS conduit
AK	Wiring box with PG-16 conduit threads
HA	AA with ground wire



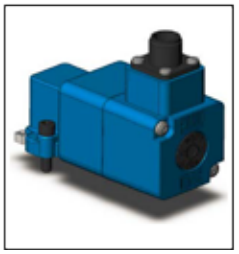
BA	Flying leads



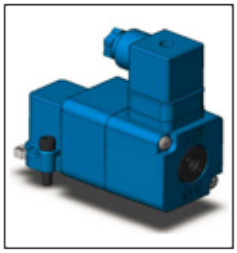
CA	1/2" NPS conduit
CC	1/2" NPT conduit
CD	20 mm conduit
CK	PG-16 conduit threads



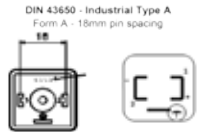
FA	2 PIN military type



GA	3 PIN military type



JA*	Square connector
JC	Square connector with light
JJ	Square connector, male only



NA	CA with ground wire
NC	CC with ground wire

MAC 200 Series - Spare parts

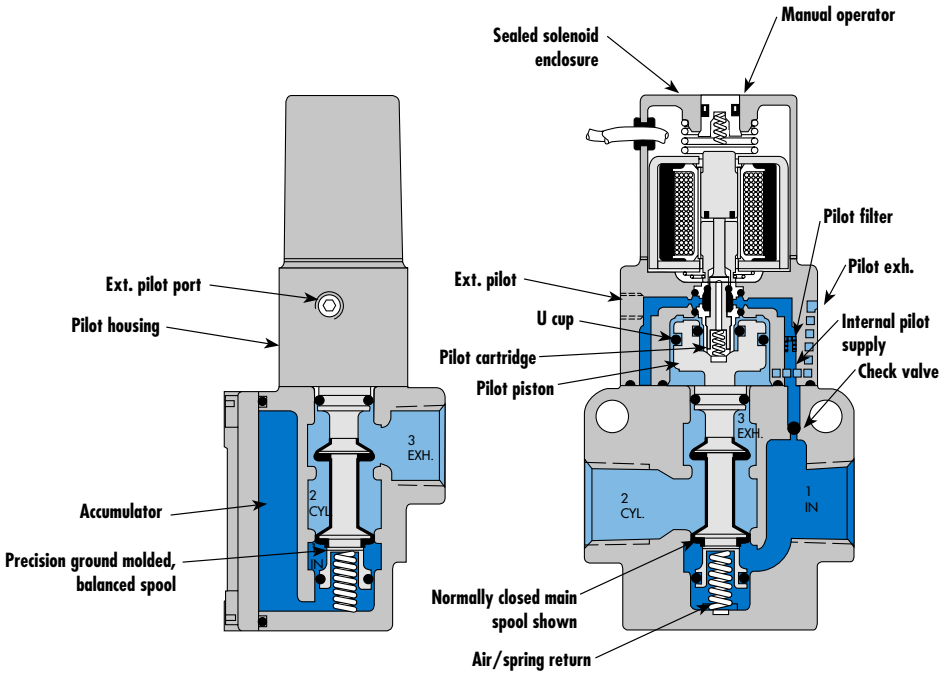
PART REFERENCE	DESCRIPTION
16377	Pressure seal regulator to manifold base
32203	Mounting screw, manifold valve to base, (2x) with base
32725	Lockwasher for 32203
32726	Shake proof washer
17014-01	O-ring seal, (2x) with retainer
17016-01	O-ring, port seal manifold base with regulator
17923-01	D-ring, (2x) on standard poppet assembly (1x on normally closed only)
202 (0005)	Manifold base with regulator, 1/4" BSPP threads
206 (0005)	Standard manifold base, 1/8" BSPP threads (same reference without (0005) : 1/8" NPTF)
207 (0005)	Standard manifold base, 1/4" BSPP threads
224B-01 (0005)	Valve less operator, universal, > 1W, inline body 1/8" BSPP (same ref. without (0005) : 1/8" NPTF)
225B-01 (0005)	Valve less operator, universal, > 1W, inline body 1/4" BSPP (same ref. without (0005) : 1/4" NPTF)
250B-01	Manifold valve less operator and base, universal 3-way, > 1W
260B-01	Manifold valve less operator and base, universal 2/2 Way, > 1W
274B-01 (0005)	Valve less operator, 3-way normally closed only, inline body 1/8" BSPP, > 1W
275B-01 (0005)	Valve less operator, 3-way normally closed only, inline body 1/4" BSPP, > 1W (same reference without (0005) = NPTF)
280B-01	Manifold valve less operator and base, 3/2 normally closed only, > 1W
A2-5003-01P	Manifold end plate kit, 1/4" BSPP threads (same reference without P = NPTF)
A2-7004	2-way function plate assembly
A2-7005	3-way function plate assembly
B4-5001	Return spring
B4-9004	Tie rod, (2x) with manifold base
B5-5010	Form seal, between manifold bases, (1x) with base
B5-5011	Pressure seal, (2x) with function plate assembly
B5-6001	Gasket, body to solenoid cover
C4-XXAA	Coil, standard lead length (AA); for (XX) see 200 series solenoid options
C5-XXAA	CLSF coil (CLSF price adder included)
D4-XXAA	Solenoid assembly, without cover; for (XX) see 200 series solenoid options
D4-XXYZZ	Solenoid assembly, with cover; for (XX) see 200 series solenoid options
D5-XXAA	D4-XXAA, with CLSF coil (CLSF adder included)

MAC 200 Series - Spare parts

PART REFERENCE	DESCRIPTION
E-02009B-00	Manual operator, inoperative
E-02009B-01	Manual operator, non-locking/recessed
E-02009B-02	Manual operator, locking/recessed
E-02009B-03	Manual operator, non-locking/extended
E-02009B-04	Manual operator, locking/extended
F2-0B	Repair kit, universal model, > 1 W
K-02001	Repair kit, normally closed only model, > 1 W
N-02003	Manifold fastening kit for bases 201/202
N-02012	Adapter for regulator
PR02A-A0AA	Regulator for 202 (less adapter)
PR02A-AAAA	Regulator for 202 (includes adapter)
R-02001B	Retainer assembly - universal
R-02002	Retainer assembly - normally closed only
S-02006	Standard poppet assembly - universal
S-02007	Standard poppet assembly - normally closed only

Individual mounting

inline	



SERIES FEATURES

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

Check the warranty page 277

Series **55**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

- 3-Way Normally Open or Normally Closed (solenoid or remote air).
- 2-Way (by plugging a port) Normally Open or Normally Closed (solenoid or remote air).
- Internal pilot or External pilot for vacuum to 2 bar main valve pressures on solenoid or 1,7 bar on remote air operated models. Manual and mechanical operators available.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

These air versions feature:

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

SERIES FEATURES-REMOTE AIR PILOT, PILOT OPERATED VALVES

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

- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 2 to 10 bar, regardless of main valve pressure.
- A manual operator and position indicator standard.

SPECIAL APPLICATIONS:

- VACUUM APPLICATIONS: Connect the vacuum source to port #3 with port #1 open to atmosphere, and use external pilot on solenoid pilot operated models. On remote air pilot models, use -**RE**.
- SELECTOR APPLICATIONS: Pipe higher pressure to port #1 and lower pressure to port #3.
- INTERNAL PILOT: Use for main valve pressure of 2 to 10 bar on all models. Includes ball check in the body and an M5x0.8 plug installed in the external pilot port.
- EXTERNAL PILOT: An external pilot supply is required when main valve pressures are lower than 2 bar on solenoid pilot or 1,7 bar on remote air pilot operated models. To convert from internal to external pilot on solenoid models simply rotate pilot housing 180 degrees and connect external pilot source. (Use either M5 or#10-32 fitting.) On remote air pilot models, specify -**RE**.

Check the warranty page 277

MAC

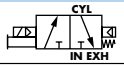
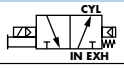
Series 55

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/4" - G3/8"**	**2200 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

Note : Exhaust port is G3/8"

Check the warranty page 277

MAC

Series 55

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

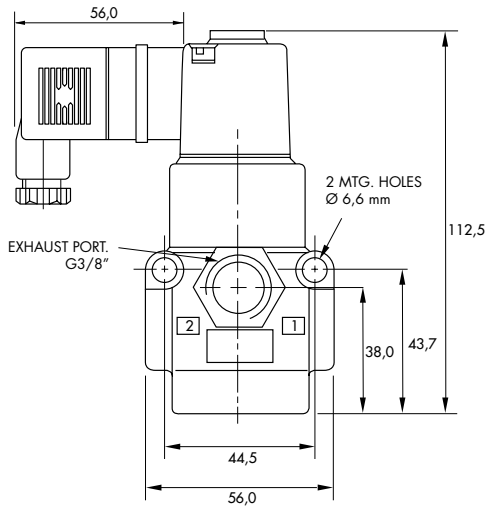
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 2 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	2 to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :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

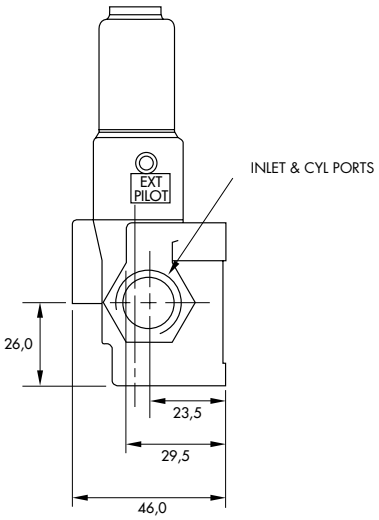
Spare parts : • Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
• Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363. • Check valve : 70061.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





Check the warranty page 277

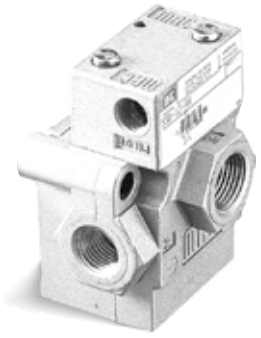
Remote air valves

Series **55**

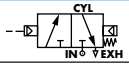
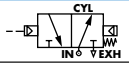
Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/4" - G3/8"**	**2500 Nl/min**	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Air pilot port : G1/8".

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

Check the warranty page 277

MAC

Series 55

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

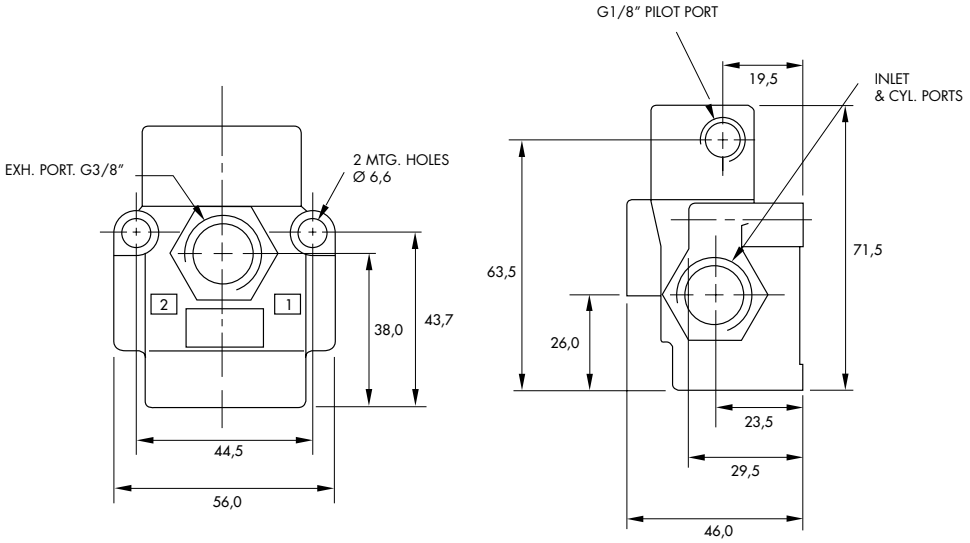
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)

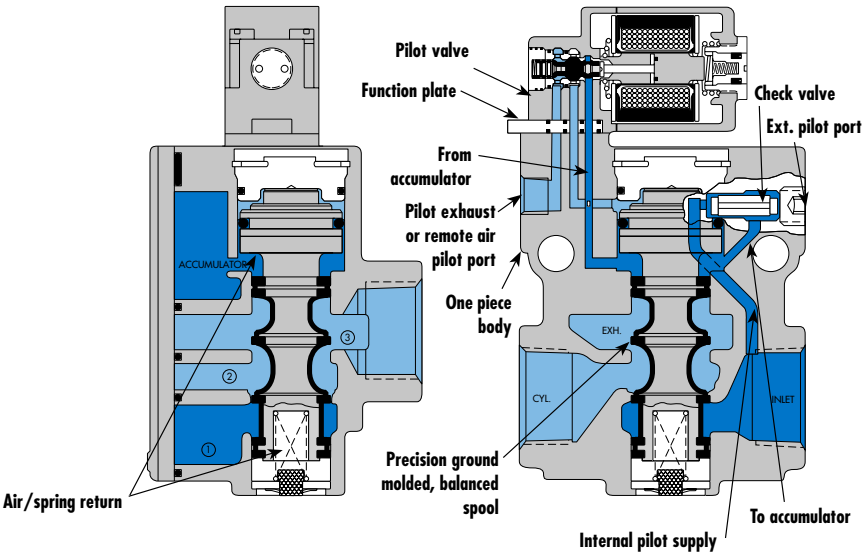


Check the warranty page 277

Series 56

Individual mounting

inline



SERIES FEATURES

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

Check the warranty page 277

MAC

Series 56

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3N.C." (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3N.O." (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug port #3.
- 2-way Normally Open-Same as 3-way N.O. but also plug port #3.
- Selector-Pipe higher pressure to port #1 and lower pressure port #3.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. Includes a check rod in the body and a 1/8'' pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 1.7 bar. If converting from an Internal Pilot model, remove the 1/8" pipe plug and check rod from the External Pilot port and install a 1/16" pipe plug in the check rod hole and pipe an external supply greater than 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the port #3 and leave port #1 open to atmosphere or pressure port #1 for vacuum/pressure selector applications.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Check the warranty page 277

MAC

Series 56

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G3/8" - G1/2" - G3/4"**	**5700 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.
Note : Exhaust port is G3/4"

Check the warranty page 277

MAC

Series 56

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

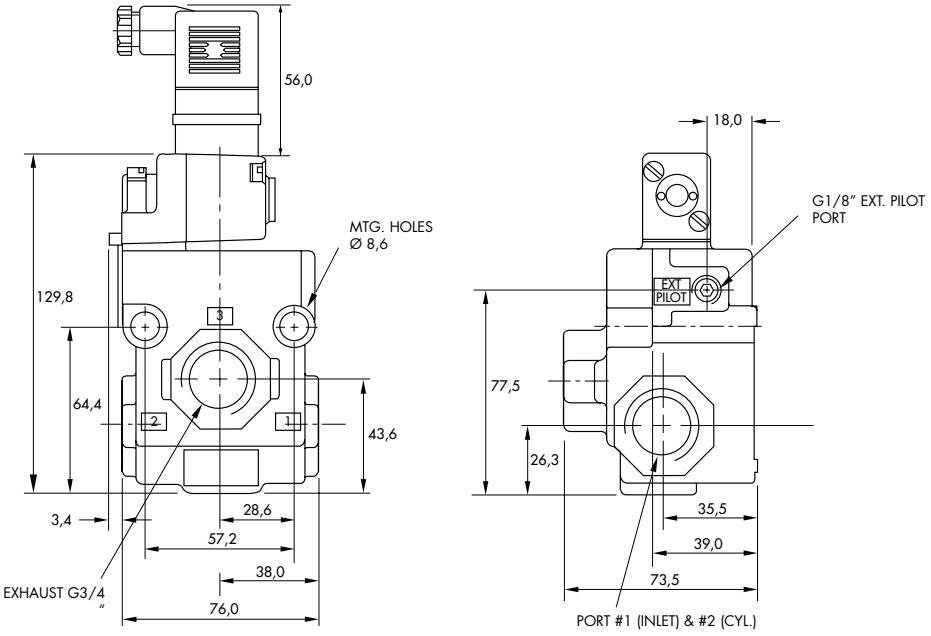
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	1.7 to 10 bar		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range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

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

Options :
- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



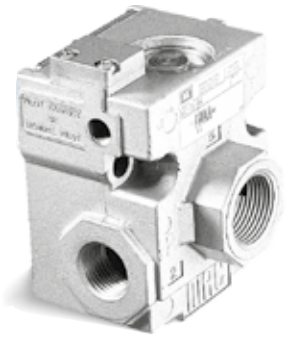
Check the warranty page 277

Series **56**

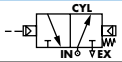
Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G3/8" - G1/2" - G3/4"**	**6200 Nl/min**	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Air pilot port : G1/8".

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

Check the warranty page 277

MAC

Series 56

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

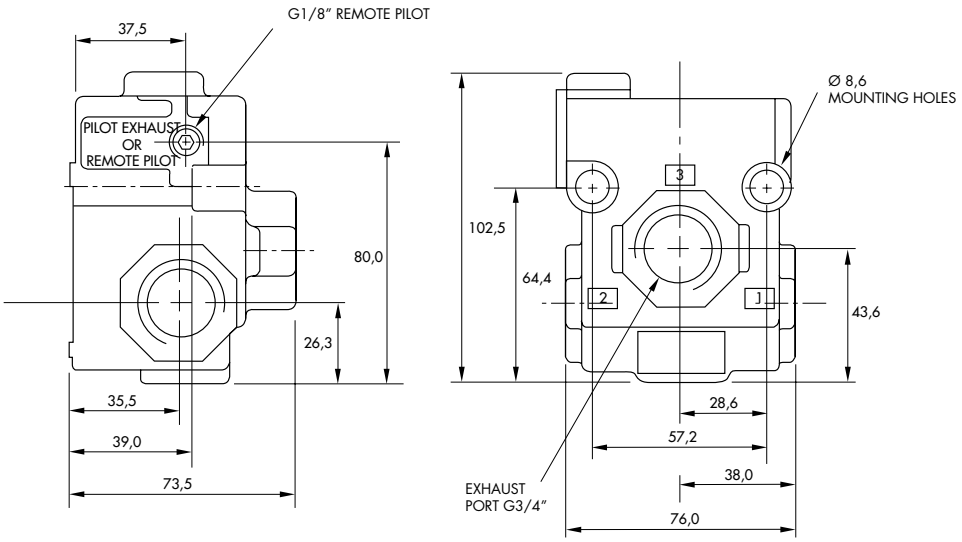
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)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

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

Options : • NPTF threads.

DIMENSIONS

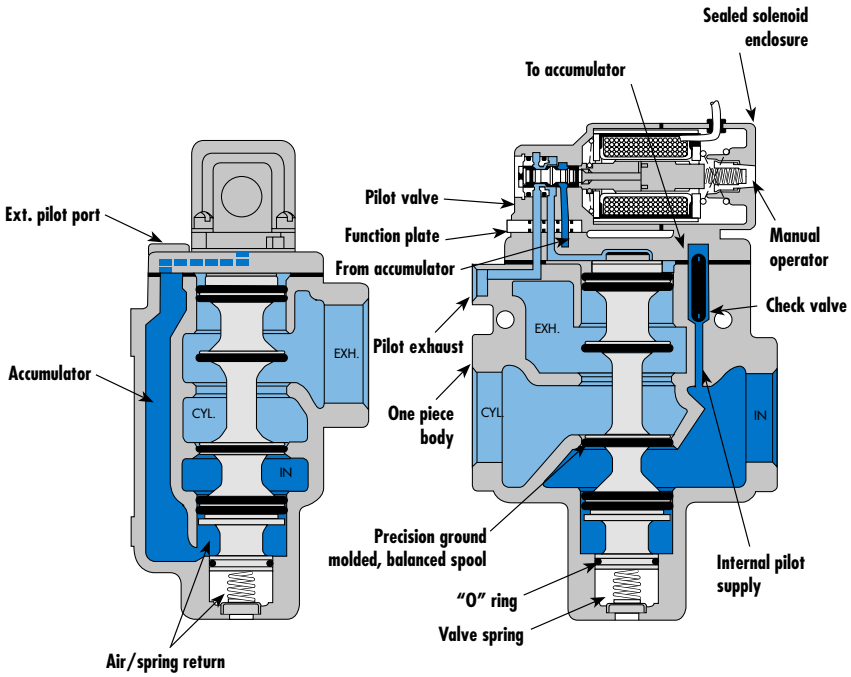
Dimensions shown are metric (mm)



Check the warranty page 277

Individual mounting

inline	



SERIES FEATURES

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

Check the warranty page 277

MAC

Series **57**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

The 7 functions are as follows:

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.
- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. Includes a check rod in the body and a 1/4'' pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 1.7 bar. If converting from an Internal Pilot model, remove the 1/4" pipe plug and check rod from the External Pilot port and install a 1/8" pipe plug in the check rod hole and pipe an external supply greater than 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Check the warranty page 277

MAC

Series 57

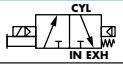
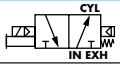
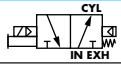
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/2" - G3/4" - G1"**	**17400 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	**Voltage**
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
52	24V=/2,5W
78	24V=/24W
61	24V=/8,5W

Y	**Manual operator**
0	No operator
1	Non-locking
2	Locking

ZZ	**Electrical connection**
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

Note : Exhaust port is G1"

Check the warranty page 277

Series 57

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

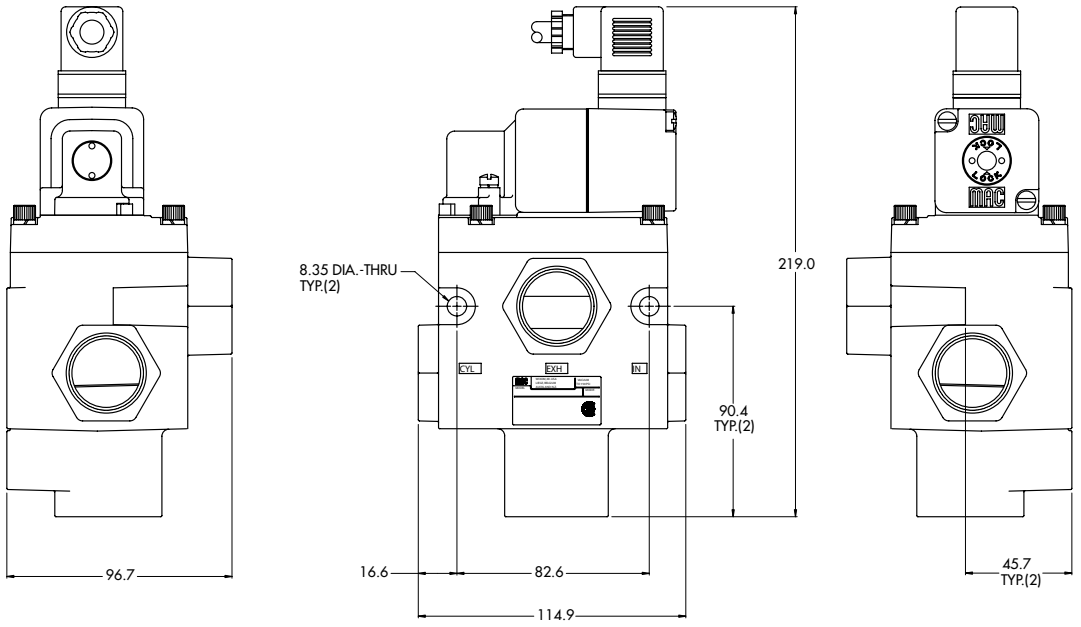
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)		
Lubrication :	Not required, if used select a medium aniline point lubricant (between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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Consult "Precautions" page 312 before use, installation or service of MAC Valves.

Check the warranty page 277

Series **57**

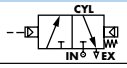
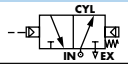
Remote air valves

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/2" - G3/4" - G1"**	**17400 Nl/min**	Inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Air pilot port : G1/8".

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

Check the warranty page 277

MAC

Series 57

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

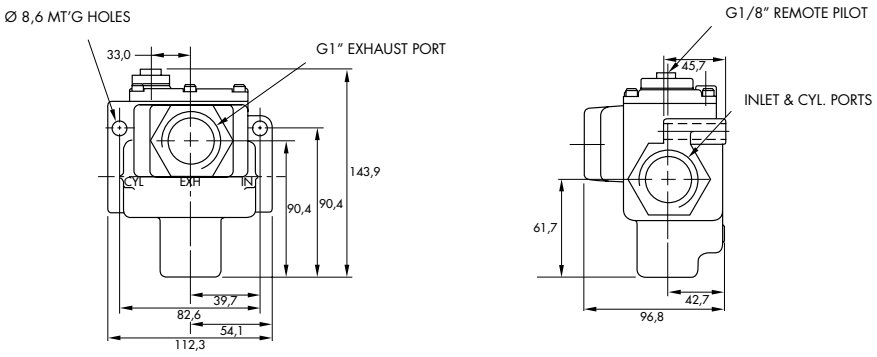
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)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

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

Options : • NPTF threads.

DIMENSIONS

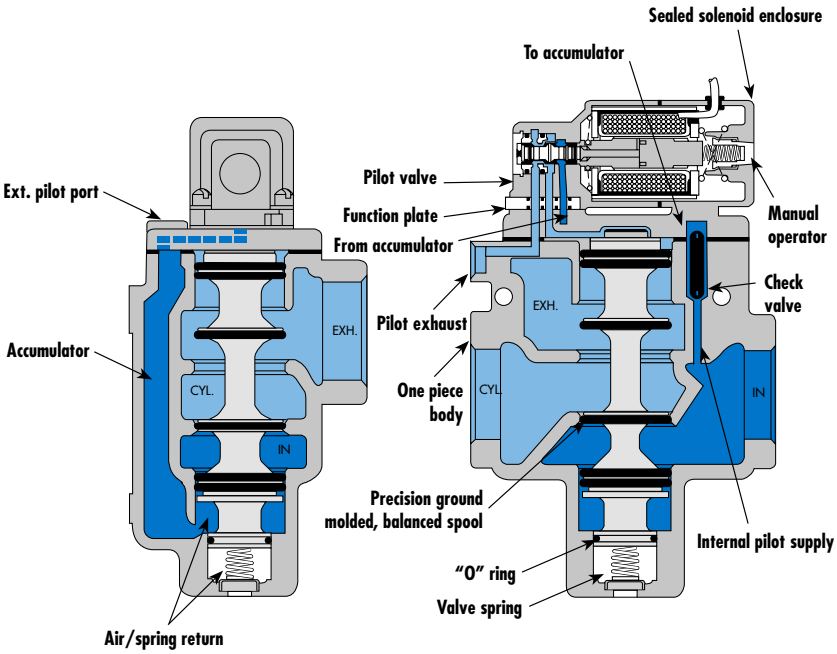
Dimensions shown are metric (mm)



Check the warranty page 277

Individual mounting

inline	



SERIES FEATURES

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

Check the warranty page 277

MAC

Series **58**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.
- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. Includes a check rod in the body and a 1/4'' pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 1.7 bar. If converting from an Internal Pilot model, remove the 1/4" pipe plug and check rod from the External Pilot port and install a 1/8" pipe plug in the check rod hole and pipe an external supply greater than 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Check the warranty page 277

MAC

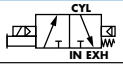
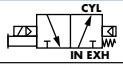
Series 58

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1" - G1 1/4" - G1 1/2"**	**26000 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
52	24V=/2,5W
78	24V=/24W
61	24V=/8,5W

Y	Manual operator
0	No operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

Note : Exhaust port is G1 1/2"

Check the warranty page 277

MAC

Series **58**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

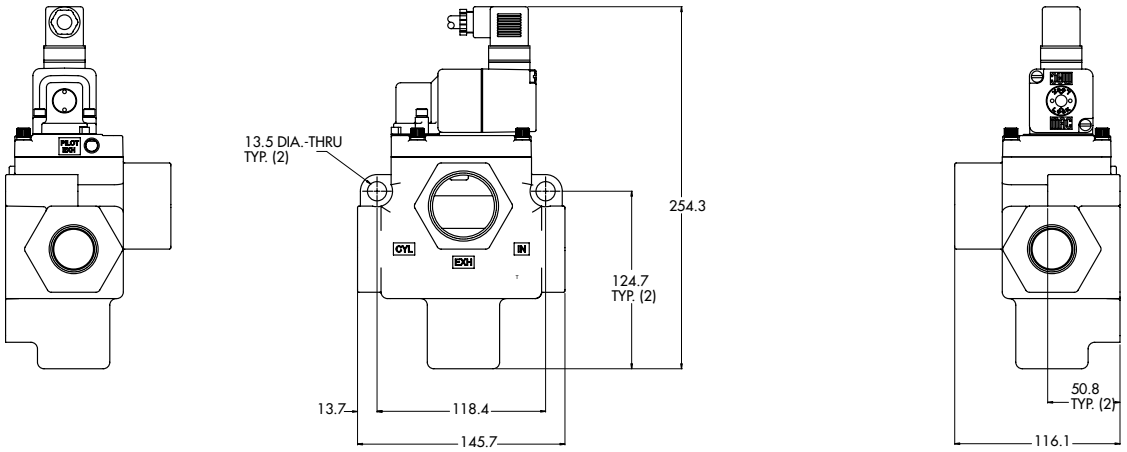
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	Norm. Closed : G1" : 18700 Nl/min, G1 1/4" : 23000 Nl/min, G1 1/2" : 24900 Nl/min, Norm. Open : G1" : 20800 Nl/min, G1 1/4" : 23800 Nl/min, G1 1/2" : 26000 Nl/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA	Holding : 19.7 VA	
	= 1 to 24 W		
Response times :	24 V=/8.5 W	Energize : 25 ms	De-energize : 18ms
	50 Hz/6 W	Energize : 10-17 ms	De-energize : 17-22 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



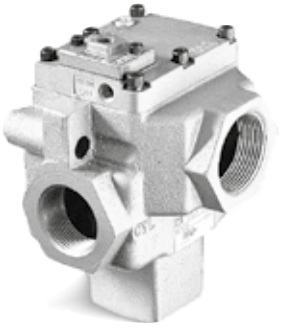
Check the warranty page 277

Series **58**

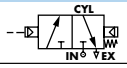
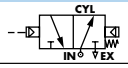
Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1" - G1 1/4" - G1 1/2"**	**33500 Nl/min**	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Air pilot port : G1/8".

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

Check the warranty page 277

MAC

Series **58**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

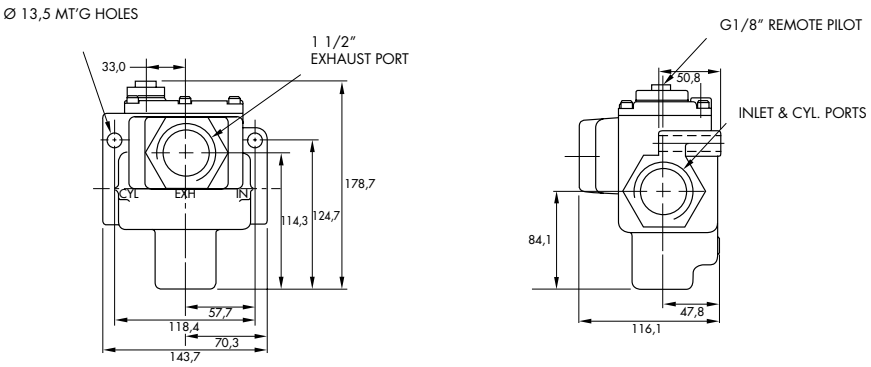
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)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

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

Options : • NPTF threads.

DIMENSIONS

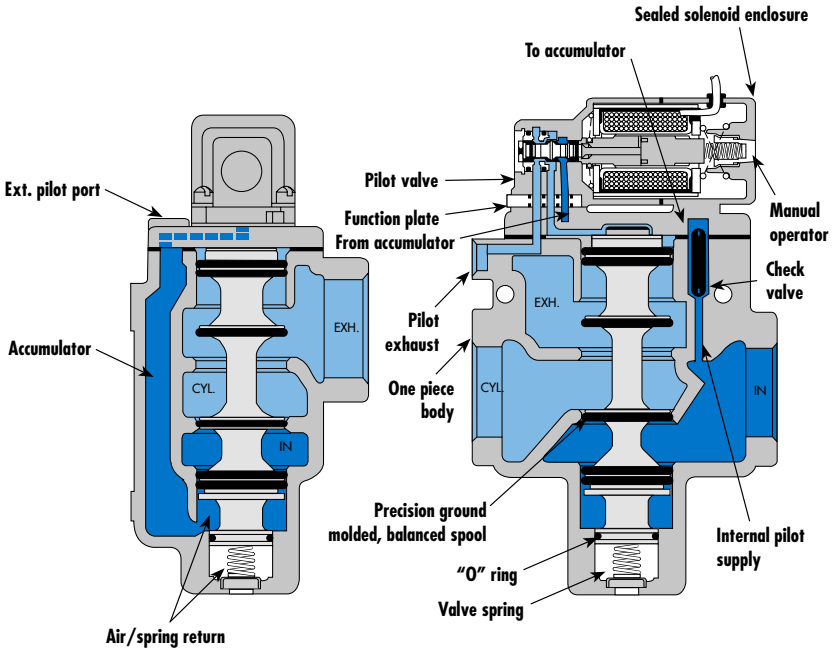
Dimensions shown are metric (mm)



Check the warranty page 277

Individual mounting

inline



SERIES FEATURES

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

Check the warranty page 277

Series 59

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

APPLICATION CONVERSION PROCEDURE

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

- 3-way Normally Closed-All 3 main valve ports utilized and function plate placed with "3-C" (3-way N.C.) visible.
- 3-way Normally Open-All 3 main valve ports utilized and function plate placed with "3-O" (3-way N.O.) visible.
- 2-way Normally Closed-Same as 3-way N.C. but also plug the Exhaust port.
- 2-way Normally Open-Same as 3-way N.O. but also plug the Exhaust port.
- Selector-Pipe higher pressure to the Inlet port and lower pressure to the Exhaust port.
- Internal Pilot-Utilized for main valve pressures of 1.7-10 bar. Includes a check rod in the body and a 1/8'' pipe plug installed in the External Pilot port.
- External Pilot-An External Pilot supply is required when main valve pressures are lower than 1.7 bar. If converting from an Internal Pilot model, remove the 1/8" pipe plug from the External Pilot and remove adapter plate. Remove check rod from the body and install an 1/8" pipe plug in the check rod hole and pipe an external supply greater than 1.7 bar to the External Pilot port. For vacuum service, make the vacuum connection to the Exhaust port and leave the Inlet port open to atmosphere.

N.C.-N.O. OPERATIONS:

SOLENOID MODELS:

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

REMOTE AIR MODELS:

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

Check the warranty page 277

MAC

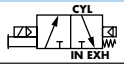
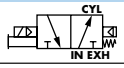
Series 59

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G2" - G2 1/2"**	**60000 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
52	24V=/2,5W
78	24V=/24W
61	24V=/8,5W

Y	Manual operator
0	No operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

Note : Exhaust port is G2 1/2"

Check the warranty page 277

MAC

Series 59

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

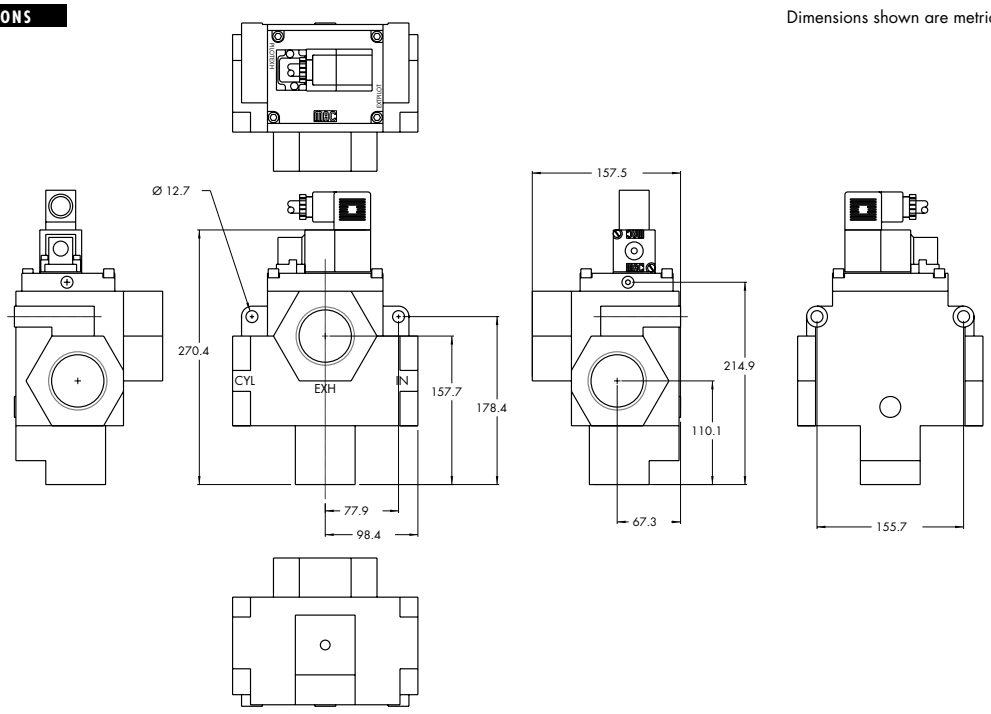
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.7 to 10 bar External pilot : vacuum to 10 bar		
Pilot pressure :	1.7 to 10 bar (Not to exceed main valve pressure by more than 3.3 bar)		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G2" : 55000 Nl/min, G2 1/2" : 60000 Nl/min		
Coil :	1General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 33 VA = 1 to 24 W	Holding : 19.7 VA	
Response times :	24 V=/8.5 W	Energize : 38 ms	De-energize : 25ms
	50 Hz/6 W	Energize : 35-45 ms	De-energize : 25-34 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

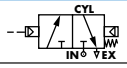
Series 59

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G2" - G2 1/2"**	**65000 Nl/min**	Inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Air pilot port : G1/8".

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

Check the warranty page 277

MAC

Series 59

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

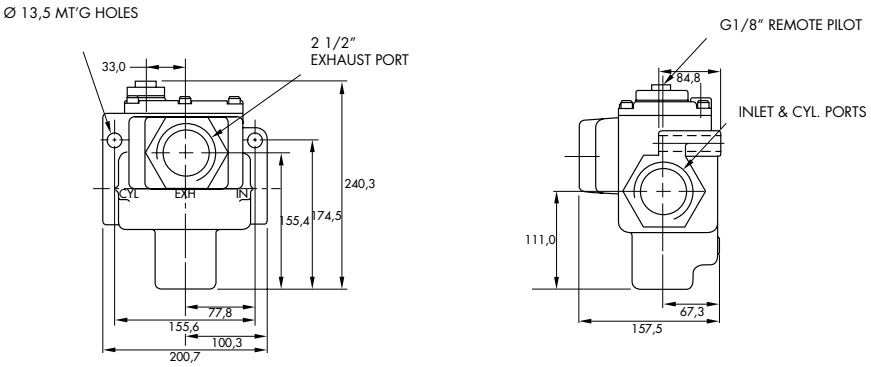
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.7 to 10 bar ≥ main valve pressure
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC 45 Series

MAC

45 Series

5/2-way direct solenoid operated

Available configurations:	Individual inline, stacking body, manifold base mounted with optional pressure regulators and flow controls
Port sizes:	M5, 1/8'' ports
Flow:	Up to 300 Nl/min (0.3 Cv)
Pressure range:	Vacuum to 8 bar (120 PSI)
Function:	5/2, 4/2
Operation:	Electrical

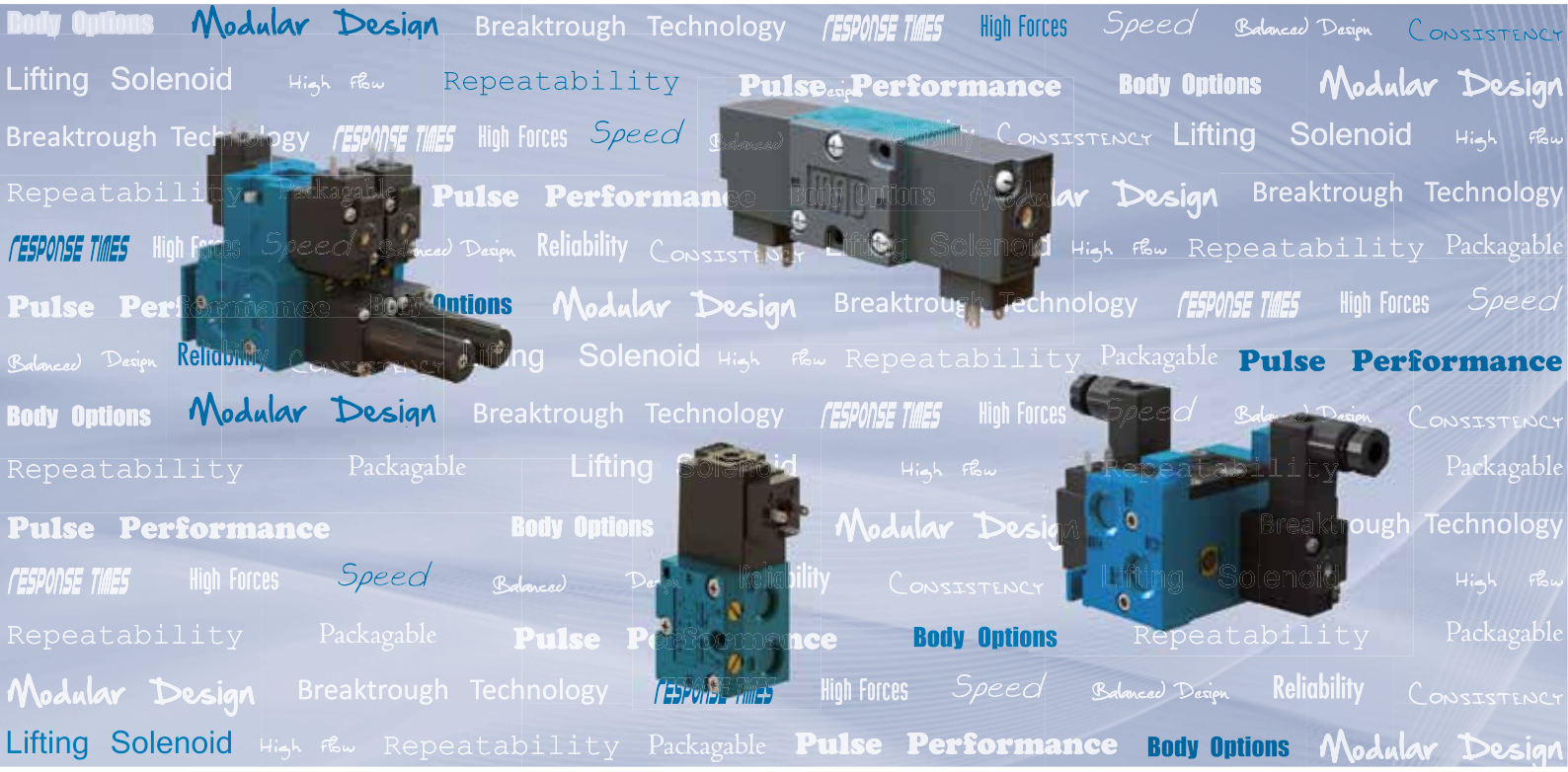


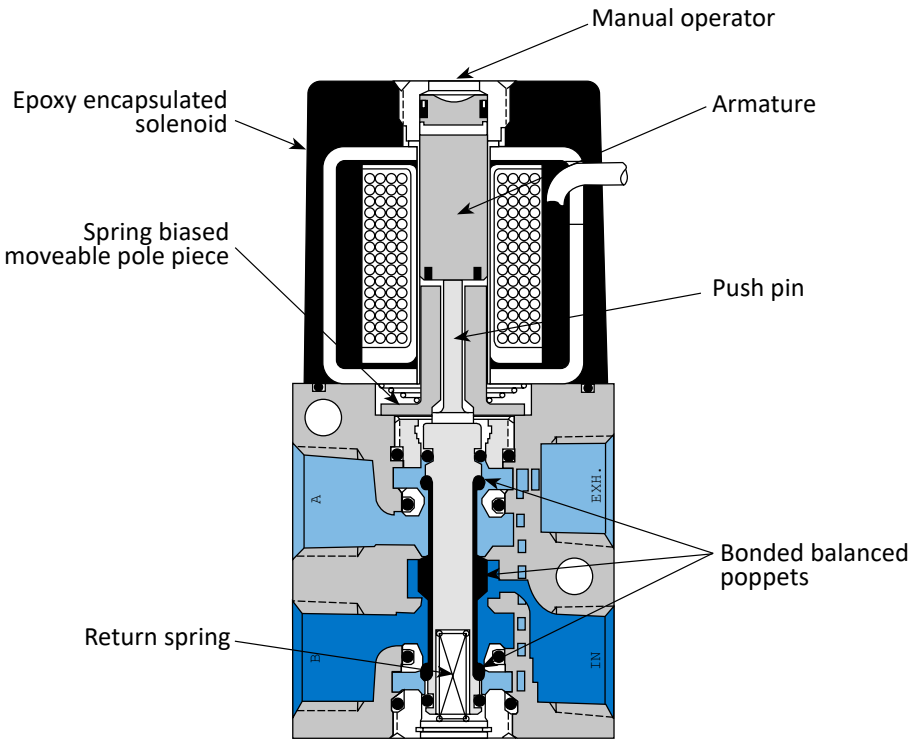
Table of contents

MAC 45 Series - Inline valve

4 & 5 way, 2 position, poppet

Flow up to 300 Nl/min (0.3 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
- ◊ Short stroke for high energization shifting force
- ◊ Strong return spring for high de-energization shifting force
- ◊ AC + DC operation
- ◊ Universal poppet for single or dual pressure use
- ◊ Additional flow controls available
- ◊ Optional O-ring bottom ports



MAC 45 Series - Inline valve

Technical data

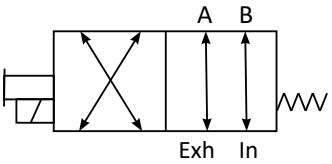
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8-2.4 W) - 4 & 5 port 100 Nl/min (0.10 Cv) All std. AC & std. 5.4 W DC - 4 port: 150 Nl/min (0.15 Cv) / 5 port: 170 Nl/min (0.17 CV) Hi-flow AC mod. 1115 / DC ≥ 7.3W mod. 1115 - 4 port: 230 Nl/min (0.23 Cv) / 5 port: 300 Nl/min (0.30 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage
Power:	24 VAC / 6W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times	24 V=/5.4 W Energize: 6 ms De-energize: 2 ms 24 V~/50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

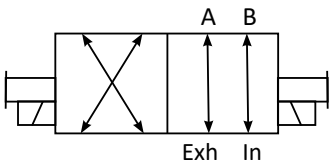
Single pressure models

4/2-way valves

Single operator

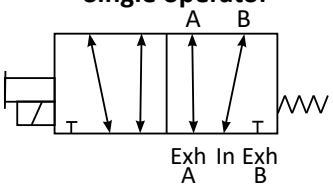


Double operator

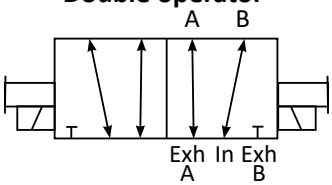


5/2-way valves

Single operator



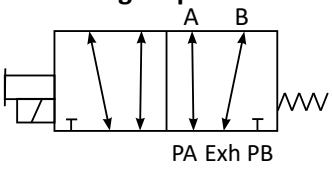
Double operator



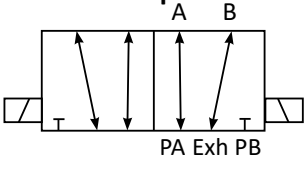
Dual pressure models

5/2-way valves

Single operator



Double operator



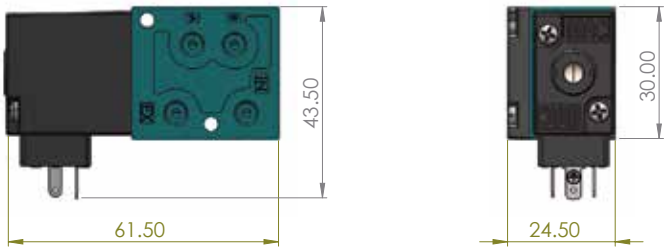
MAC 45 Series - Inline valve

All dimensions are in mm

Dimensions

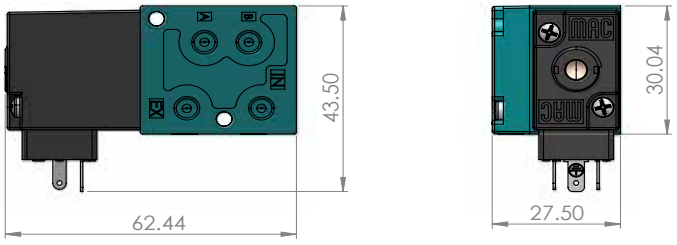
4/2 Single Operator Valve

45A-AC1-DDAJ-1KJ



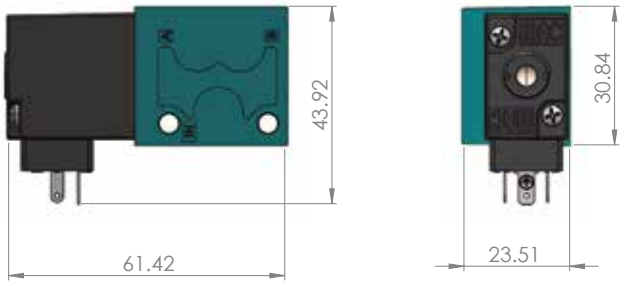
4/2 Single Operator Valve with Flow Controls

45A-AC2-DDAJ-1KJ



5/2 Single Operator Valve

45A-BC1-DDAJ-1KJ



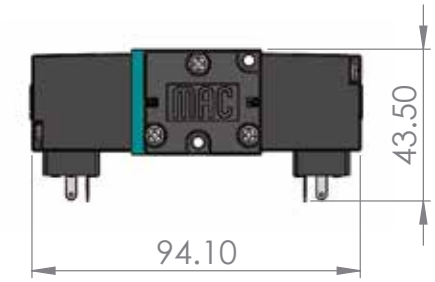
MAC 45 Series - Inline valve

All dimensions are in mm

Dimensions

4/2 Double Operator Valve

45A-GC1-DDAJ-1KJ



MAC 45 Series - Stacking valve

4-way, 2 position, poppet

Flow up to 300 Nl/min (0.3 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
- ◊ Short stroke for high energization shifting force
- ◊ Strong return spring for high de-energization shifting force
- ◊ AC + DC operation
- ◊ Universal poppet for single or dual pressure use
- ◊ Additional flow controls available

MAC 45 Series - Stacking valve

Technical data

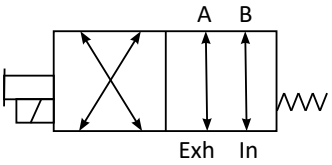
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8-2.4 W): 140 Nl/min (0.14 Cv) All std. AC & std. 5.4 W DC: 200 Nl/min (0.20 Cv) Hi-flow AC mod. 1115 / DC ≥ 7.3 W mod. 1115: 300 Nl/min (0.30 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage
Power:	24 VAC / 6W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times	24 V=/5.4 W Energize: 6 ms De-energize: 2 ms 24 V~/50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

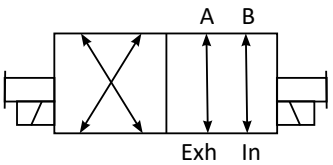
Single pressure models

4/2

Single operator



Double operator

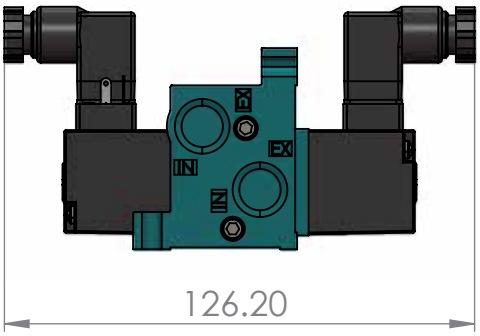


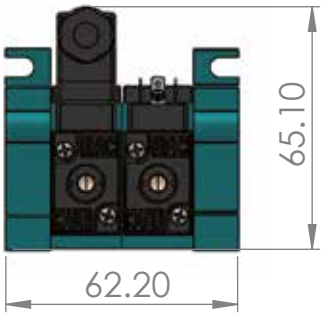
MAC 45 Series - Stacking valve

Dimensions

45A-SC2-DDAJ-1KJ-9
45A-TC1-DDAJ-1KJ-9
M45001-01P-9

All dimensions are in mm

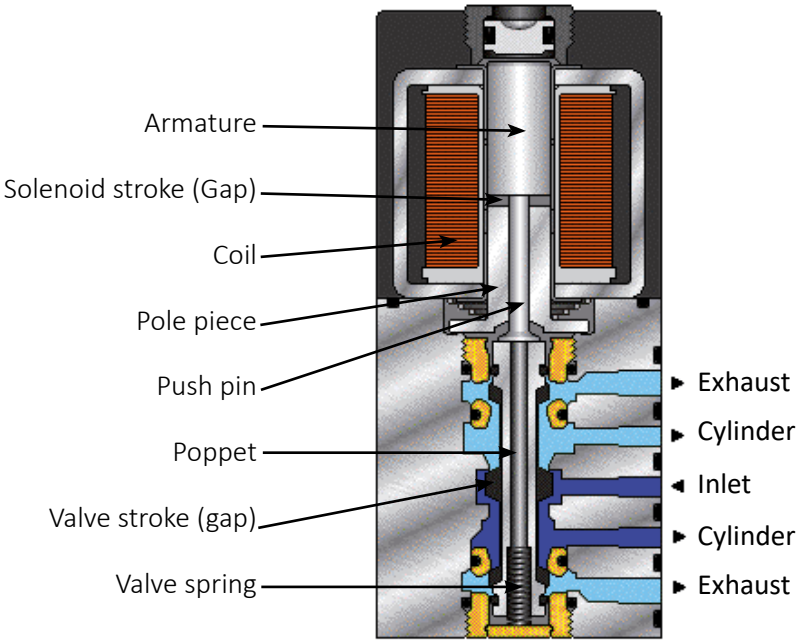




MAC 45 Series - Manifold non plug-in valve

5-way, 2 position, poppet
Flow up to 180 Nl/min (0.18 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
- ◊ Short stroke for high energization shifting force
- ◊ Strong return spring for high de-energization shifting force
- ◊ Universal poppet
- ◊ AC + DC operation
- ◊ Flow controls available
- ◊ Pressure regulators available (to be ordered separately)
- ◊ Can be mounted on individual base, manifold base or circuit bar®



MAC 45 Series - Manifold non plug-in valve

Technical data

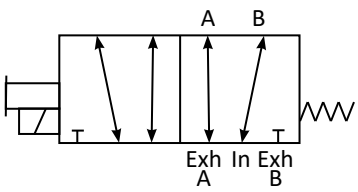
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8-2.4 W): 90 Nl/min (0.09 Cv) All std. AC & std. 5.4 W DC: 110 Nl/min (0.11 Cv) Hi-flow AC mod. 1115 / DC ≥ 7.3 W mod. 1115: 180 Nl/min (0.18 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage
Power:	24 VAC / 6W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times	24 V=/5.4 W Energize: 6 ms De-energize: 2 ms 24 V~/50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

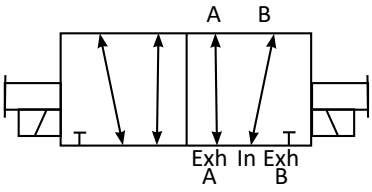
Single pressure models

5/2

Single operator



Double operator

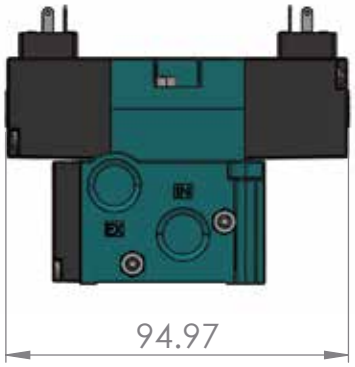


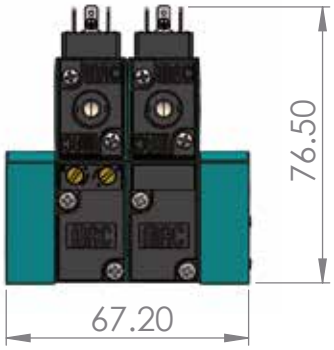
MAC 45 Series - Manifold non plug-in valve

Dimensions

45A-LCD-DDAJ-1KJ-9
45A-NCC-DDAJ-1KJ-9
M-45008-01P-9

All dimensions are in mm



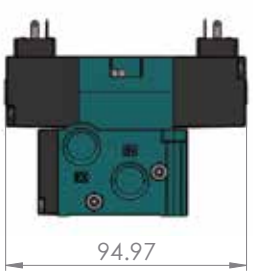


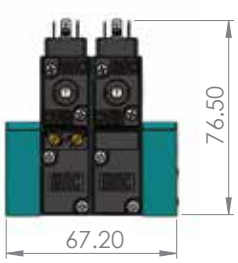
MAC 45 Series - Manifold non plug-in valve

Options

Manifold non plug-in base mounted without pressure regulator

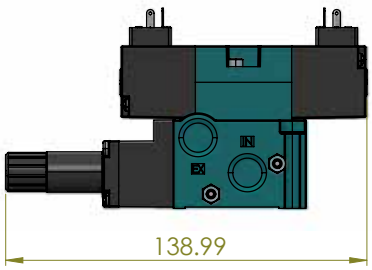
All dimensions are in mm

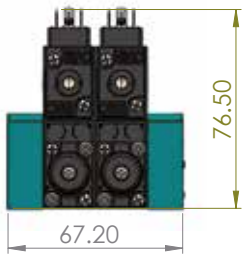




45A-LCD-DDAJ-1KJ-9
45A-NCC-DDAJ-1KJ-9
M-45008-01P-9

Manifold non plug-in base mounted with pressure regulators





45A-LCJ-DDAJ-1KJ-9
45A-NCJ-DDAJ-1KJ-9
M-45008-01P-9

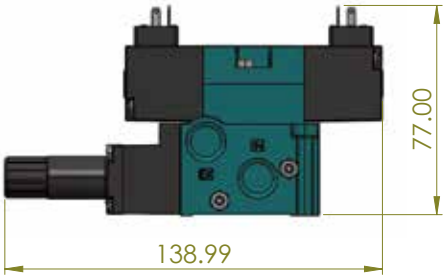
All dimensions are in mm

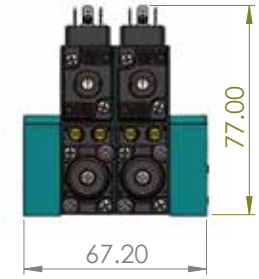
MAC 45 Series - Manifold non plug-in valve

Options

Manifold non plug-in base mounted with pressure regulators & flow controls

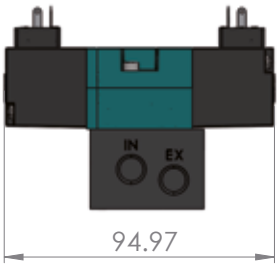
All dimensions are in mm





45A-LCK-DDAJ-1KJ-9
45A-NCK-DDAJ-1KJ-9
M-45008-01P-9

Manifold non plug-in circuit bar without pressure regulator & flow control



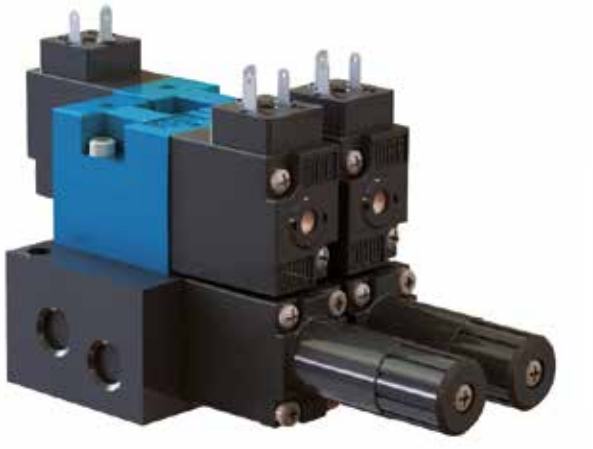
45A-L00-DDAJ-1KJ-9
45A-N00-DDAJ-1KJ-9
EBM45A-001C-02-9

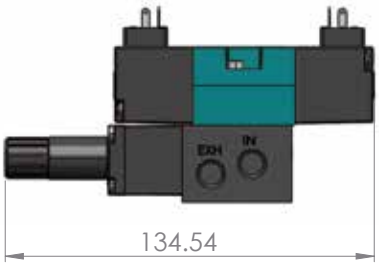
MAC 45 Series - Manifold non plug-in valve

Options

Manifold non plug-in circuit bar with pressure regulators & without flow controls

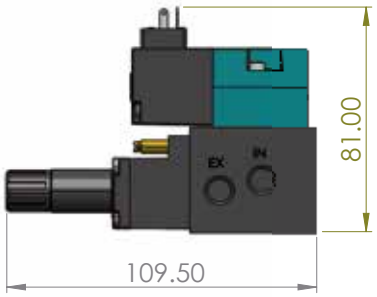
All dimensions are in mm





45A-L00-DDAJ-1KJ-9
45A-N00-DDAJ-1KJ-9
EBM45A-003C-02-9
2x 35A-00M-9

Manifold non plug-in circuit bar with pressure regulators & flow controls



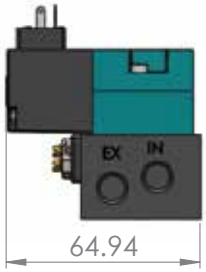
2x 45A-L00-DDAJ-1KJ-9
1x EBM45A-007C-02-9
2x 45A-002-9

MAC 45 Series - Manifold non plug-in valve

Options

Manifold non plug-in circuit bar with flow controls

All dimensions are in mm



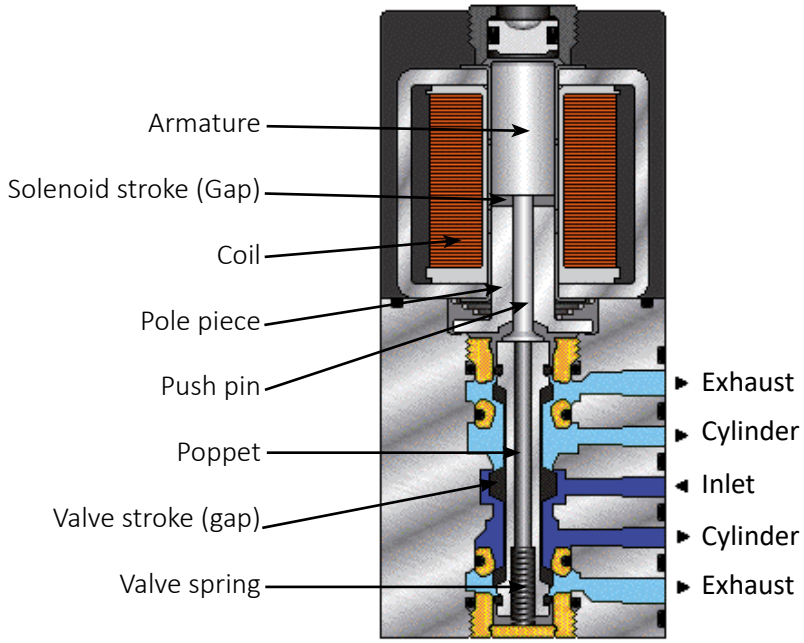
2x 45A-L00-DDAJ-1KJ-9
EBM45A-015C-02-9

MAC 45 Series - Manifold plug-in valve

5-way, 2 position, poppet

Flow up to 170 Nl/min (0.17 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
- ◊ Short stroke for high energization shifting force
- ◊ Strong return spring for high de-energization shifting force
- ◊ AC + DC operation
- ◊ Additional flow controls available
- ◊ Pressure regulators available (to be ordered separately)
- ◊ To be mounted on a circuit bar
- ◊ Single operator only



MAC 45 Series - Manifold plug-in valve

Technical data

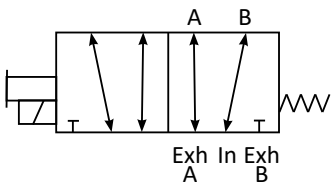
Fluid:	Compressed air, vacuum, inert gases
Pressure range:	Vacuum to 8 bar
Lubrication:	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
Filtration:	40 µ
Temperature range:	-18°C to 50°C
Flow (at 6 bar, ΔP=1bar):	Low watt DC (1.8-2.4 W): 80 Nl/min (0.08 Cv) All std. AC & std. 5.4 W DC: 100 Nl/min (0.10 Cv) Hi-flow AC mod. 1115 / DC ≥ 7.3 W mod. 1115: 170 Nl/min (0.17 Cv)
Coil:	Epoxy encapsulated - Class A wires
Voltage range:	-15% to +10% of nominal voltage
Power:	24 VAC / 6W: Inrush: 10.9 VA Holding: 7.7 VA 24 VDC: 1.8 to 24 W
Response times	24 V=/5.4 W Energize: 6 ms De-energize: 2 ms 50 Hz/6 W Energize: 3-8 ms De-energize: 2-7 ms

Solenoid pilot operated valve

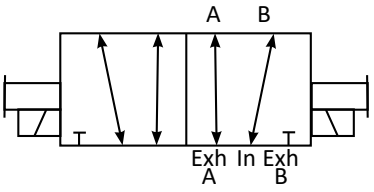
Single pressure models

5/2

Single operator



Double operator



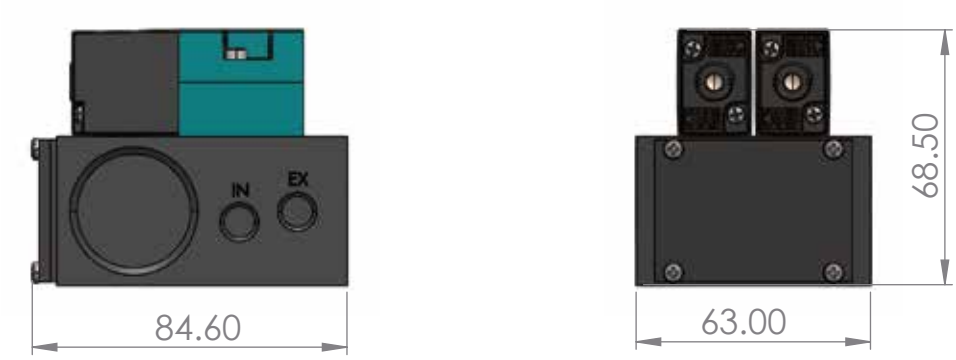
MAC 45 Series - Manifold plug-in valve

Dimensions

All dimensions are in mm

2x 45A-L00-DDAJ-1FM-9
1x ECD45A-001C-A0-02-9

All dimensions are in mm

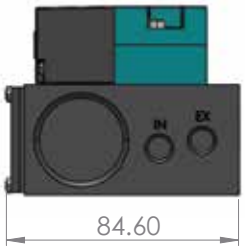


MAC 45 Series - Manifold plug-in valve

Options

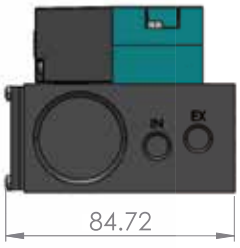
Manifold plug-in base mounted without pressure regulators and flow controls

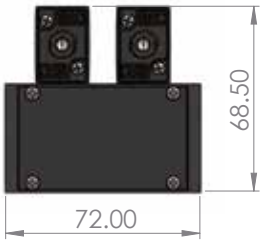
All dimensions are in mm



2x 45A-L00-DDAJ-1FM-9
1x ECD45A-001C-A0-02-9

Manifold plug-in base mounted with flow controls





2x 45A-L00-DDAJ-1FM-9
1x ECD45A-035C-A0-02-9

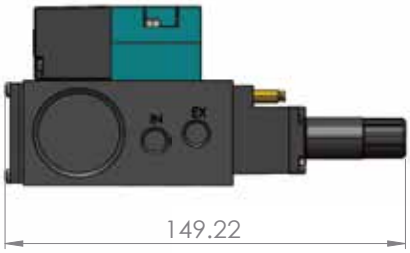
All dimensions are in mm

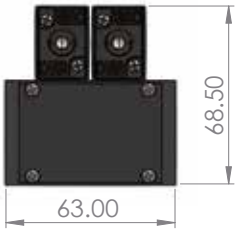
MAC 45 Series - Manifold plug-in valve

Options

Manifold plug-in base mounted with pressure regulators & flow controls (bottom ports only)

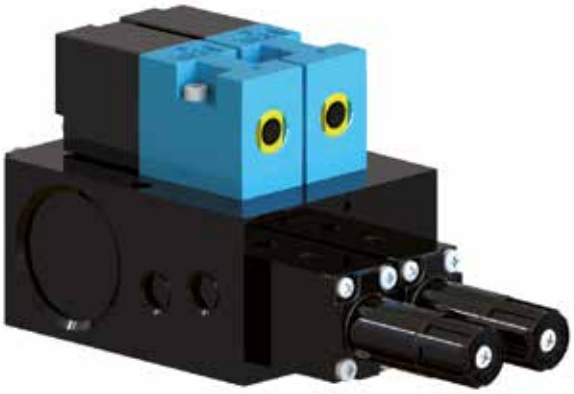
All dimensions are in mm

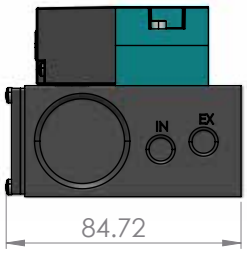


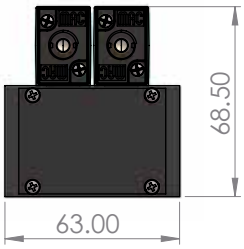


2x 45A-L00-DDAJ-1FM-9
1x ECD45A-007C-A0-02-9
2x 45A-002-9

Manifold plug-in base mounted with pressure regulator (bottom ports only)







2x 45A-L00-DDAJ-1FM-9
1x ECD45A-004C-A0-02-9
2x 35A-00M

MAC 45 Series

MAC 45 Series - How to order - Inline body

45A - X X X - D XX X - X XX — **SOLENOID OPTIONS** *(see below)*

BODY TYPE	PORT SIZE	FLOW CONTROLS - BASE STYLES
A 4 port body - All side ports	**A** 1/8'' NPTF	**1** No flow controls
B 5 port body - All side ports	**C** 1/8'' BSPPL	**2** With flow controls
D 4 port body O ring mount All bottom ports - No side ports	**D** M5 (Metric)	
E 5 port body O ring mount 3 bottom ports inlet and cylinders - All side ports	**H** O ring mount ports (D & H body types only)	
F 4 port body O ring mount Bottom cylinder ports only - In & Exh side ports		
G 4 port body - Double		
H 4 port body - Double - O ring mount All bottom ports - No side ports		
J 4 port body - Double - O ring mount Bottom cylinder ports only - All side ports		

How to order stacking body

45A - X X X - D XX X - X XX — **SOLENOID OPTIONS** *(see below)*

BODY TYPE	PORT SIZE	FLOW CONTROLS - BASE STYLES
S Stacking body	**A** 1/8'' NPTF	**1** No flow controls
T Stacking body - Double	**C** 1/8'' BSPPL	**2** With flow controls
	D M5 (Metric)	

How to order base mount body

45A - X X X - D XX X - X XX — **SOLENOID OPTIONS** *(see below)*

BODY TYPE	PORT SIZE	FLOW CONTROLS - REGULATORS BASE STYLES
O For base only - No valve	**0** Base mount body only	**0** Valves only - no base
L Base mount body	**A** 1/8'' NPTF	**A** Individual base
N Base mount body - double	**C** 1/8'' BSPPL	**B** Individual base with flow controls
	D M5 (Metric)	**C** Manifold base
		D Manifold w/ flow controls
		E Manifold w/ regulator w/ slotted stem
		F Manifold w/ flow contr. & reg. w/slotted stem
		G Manifold w/ regulator w/ locking slotted stem
		H Manifold w/ F.C. & reg. w/ locking slotted stem
		J Manifold w/ regulator w/ locking knob
		K Manifold w/ regulator w/ locking knob w/ F.C.

Accessories

STACKING VALVES	
M-45001-01	End plate kit NPTF
M-45001-01P	End plate kit BSPPL
N-45005	Isolator kit - Inlet & exhaust
N-45006	Isolator kit - Inlet only
N-45007	Isolator kit - Exhaust only
N-45004	Flow control assembly
16422	Presure seal between valves
19813	Tie rod

MANIFOLD VALVE NON PLUG-IN	
M-45008-01	End plate kit NPTF
M-45008-01P	End plate kit BSPPL
16455	Pressure seal between manifold
19753	Tie rods
N-45008	Isolator kit - Inlet & exhaust
N-45009	Isolator kit - Inlet only
N-45010	Isolator kit - Exhaust only
N-45015	End cover plate - Plain
N-45016	End cover plate w/ flow controls
N-45017	Flow control needle assembly
M-45010	Valve blanking plate
M-35005	Regulator blanking plate

INDIVIDUAL INLINE VALVE	
N-45002-01	Flow control plate assembly

INDIVIDUAL BASE	
N-45018	Flow control assembly

MAC 45 Series - How to Order - Solenoid Options

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

VALVE CODE ⇨ **D XX X - X XX**
1 2 3 4

1. VOLTAGE

-D XX X -X XX	VOLTAGE
AA	120 V~/60 Hz - 110 V/50 Hz
AB	240 V~/60 Hz - 220 V/50 Hz
AC	24 V~/60 Hz - 24 V/50 Hz
AD	24 V~/60 Hz
AE	200 V~/60 Hz
AF	240 V~/50 Hz
AG	240 V~/50 Hz
DA	24 V=/5,4 W
DB	12 V=/5,4 W
DC	12 V=/7,5 W
DD	24 V=/7,3 W
DE	12 V=/12,7 W CLSF only
DF	24 V=/12,7 W CLSF only
DK	110 V=/4,7 W
DL	64 V=/6 W
DM	36 V=/5,3 W
DN	6 V=/6 W
DP	48 V=/5,8 W
DU	24 V=/6 W
EA	12 V=/6 W
FA	12 V=/1,8 W
FB	24 V=/1,8 W
FE	12 V=/2,4 W
FF	24 V=/2,4 W

2. FLYING LEADS / EXTERNAL PLUG-IN

-D XX X -X XX	FLYING LEADS (WIRE LENGTH)
A	45 cm - 18"
B	60 cm - 24"
C	90 cm - 36"
D	120 cm - 48"
E	180 cm - 72"
F	240 cm - 96"
-D XX X -X XX	**EXTERNAL PLUG-IN**
J	For external plug-in connector

3. MANUAL OPERATOR

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

4. ELECTRICAL CONNECTION

-D XX X -X XX	FLYING LEADS
BA	Flying leads
BK	Flying leads with protection diode
BL	Flying leads with protection varistor (M.O.V.)
-D XX X -X XX	**EXTERNAL PLUG-IN**
FM	Plug-in (for ECD bar)
FN	Plug-in with diode (for ECD bar)
FP	Plug-in with M.O.V. (for ECD bar)
*JB	DIN 43650 - Industrial type B connector (male + female)
*JD	DIN 43650 - Industr. type B conn. with light (male + female)
*JM	DIN 43650 - Industrial type B connector (male only)
KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industr. type C connector with protection diode
KC	DIN 43650 - Industr. type C conn. with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Industrial type C connector with light and protection diode
KF	DIN 43650 - Industrial type C connector with light and protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Industrial type C connector with protection diode (male only)
KL	DIN 43650 - Industrial type C connector with protection varistor (male only)
TA	Dual tabs with receptacles
TB	Dual tabs with protection diode
TD	Dual tabs with light
TE	Dual tabs with light and protection diode
TJ	Dual tabs (male only)
TK	Dual tabs (male only) with protection diode
TM	Dual tabs (male only) with light
TN	Dual tabs (male only) with light and protection diode

* Inline valves only

MAC 45 Series

MAC 45 Series - Codification of valve solenoid (coil / connector configurations)

BA*	Flying leads
BK*	Flying leads with protection diode
BL*	Flying leads with protection varistor (M.O.V.)

* From lead wire length options choose A - H

FM	Plug-in (for ECD & ECE bar)
FN	Plug-in with diode (for ECD & ECE bar)
FP	Plug-in with M.O.V. (for ECD & ECE bar)

JB	DIN 43650 - Industrial type B connector (male + female)
JD	DIN 43650 - Industrial type B connector with light (male + female)
JM	DIN 43650 - Industrial type B connector (male only)

11mm pin spacing

KA	DIN 43650 - Industrial type C connector
KB	DIN 43650 - Industrial type C connector with protection diode
KC	DIN 43650 - Industrial type C connector with protection varistor
KD	DIN 43650 - Industrial type C connector with light
KE	DIN 43650 - Industrial type C connector with light and protection diode
KF	DIN 43650 - Industrial type C connector with light and protection varistor
KG	DIN 43650 - Industrial type C connector with light & diode
KJ	DIN 43650 - Industrial type C connector (male only)
KK	DIN 43650 - Industrial type C connector with protection diode (male only)
KL	DIN 43650 - Industrial type C connector with protection varistor (male only)

TA	Dual tabs with receptacles
TB	Dual tabs with protection diode
TD	Dual tabs with light
TE	Dual tabs with light and protection diode
TJ	Dual tabs (male only)
TK	Dual tabs (male only) with protection diode
TM	Dual tabs (male only) with light
TN	Dual tabs (male only) with light and protection diode

MAC 45 Series

MAC 45 Series - How to order - Circuit bar®

Non plug-in Circuit bar®

EBM 45A - X X X X - X X - 9

Valves, regulators and blanking plates assembled to bar

Number of Stations

SPACING	CONFIGURATION	CYLINDER PORT SIZE
00 Standard (21 mm) **01** For electrical conduit or rectangular DIN type connectors or flow controls (26 mm)	**1** Side cylinder ports **2** Bottom cylinder ports **3** For regulator w/ side cylinder ports **4** For regulator w/ bottom cylinder ports **5** For flow controls w/ side cylinder ports **6** For flow controls w/ bottom cylinder ports **7** For regulator & F.C. w/ side cylinder ports **8** For regulator & F.C. w/ bottom cylinder ports	**A** 1/8" NPTF **B** #10-32 UNF **C** 1/8" BSPPL **D** M5 Metric

Accessories - Non plug-in bars

BLANKING PLATES	
M-45010	Valve
M-35005	Regulator

Plug-in Circuit bar®

ECD 45A - X X X X - X X - 9

Valves, regulators and blanking plates assembled to bar

SPACING	CONFIGURATION	CYLINDER PORT SIZE	LIGHT / TERMINAL STRIP
00 21 mm **01** 26 mm **03** 30 mm	**1** Side cylinder port **2** Bottom cylinder port **4** Bottom cylinder port with side regulator **5** Side cyl. port w/ flow controls **6** Bottom cyl. ports w/ flow controls **7** Bottom cyl. port w/ side regulator & flow controls	**A** 1/8" NPTF **B** #10-32 UNF **C** 1/8" BSPPL **D** M5 metric	**AO** Standard (no light) **AA** Standard w/ light (120 V) **AB** Standard w/ light (240 V) **AD** Standard w/ light (24 V)

Accessories - Plug-in & non plug-in bars

BLANKING PLATES	
M-35005	Regulator

35A - 00 X*

PRESSURE REGULATOR	
L	Slotted stem
M	Adjusting knob
U	Locking stem

45A - 00 X*

PRESSURE REGULATOR & FLOW CONTROLS	
1	Slotted stem
2	Adjusting knob
3	Locking stem

* Pressure regulators are to be ordered separately

How to order sandwich regulator (for plug-in Circuit bar® only)

PR45A - X X X X - 9

Regulator assembled to valve

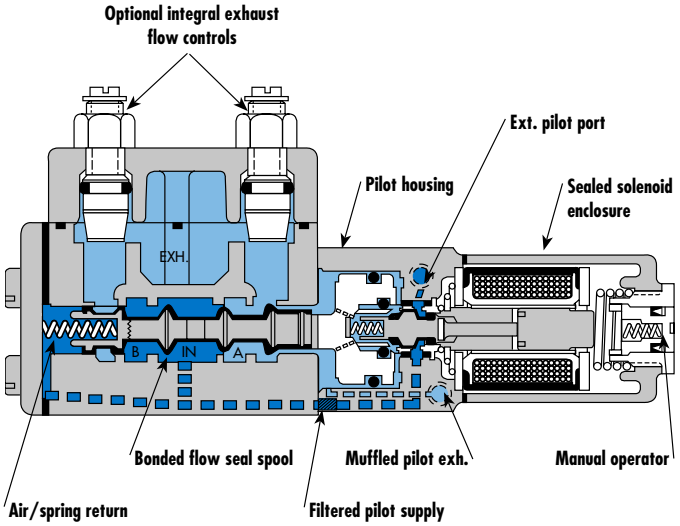
BLOCK OPTION	CONFIGURATION	GAGES	PRESSURE RANGE
0 Regulator only **A** Plug-in solenoid block (single solenoid only)	**0** Sandwich block only **A** Manual adjust w/ adjusting knob **B** Manual adjust w/ slotted stem **C** Manual adjust w/ locking stem	**0** No gage port	**0** Sandwich block only **A** 0 to 8 bar / 0 to 120 PSI

Individual mounting

inline

Manifold mounting

stacking



SERIES FEATURES

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

MAC

Series 700

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

The 700 Series is a compact 4-way valve with a flow of up to 800 Nl/min. This series provides fast response, long life and high flow not commonly found in this size valve.

- 2-Pos., single or double operator (solenoid or remote air).
- Individual body or stacking body (2 common ports).
- Integral adjustable exhaust flow control models.
- Internal pilot or external pilot for vacuum to 1.3 bar main valve pressures.
- Manual and mechanical operators available.

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

- Air/spring return for consistent shifting on single remote air valves for main valve pressures of 1.3 bar or more.
- Optional integral adjustable exhaust flow controls.

SERIES FEATURES-REMOTE AIR PILOT, PILOT OPERATED VALVES

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

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

SPECIAL APPLICATIONS:

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

- INTERNAL PILOT-Utilized for main valve pressures equal to or greater than minimum pilot pressures. Pilot supply is fed to both the pilot valves and the air/spring return from the inlet.
- EXTERNAL PILOT-Required for all solenoid pilot operated models when main valve pressures are below 1.3 bar on single operator or 0.7bar on double operator models. Single operators require MOD 158-heavy duty spring. Pipe using either an M5x0.8 or a M5 fitting to the external pilot port. To convert from internal to external pilot, simply rotate pilot housing 180° and install heavy duty spring.
- VACUUM APPLICATIONS-Use external pilot models only, without flow controls and connect vacuum source to the exhaust port and leave the inlet open to atmosphere.
- SELECTOR APPLICATIONS-Use models without flow controls, connect the higher pressure to the inlet port and lower pressure to the exhaust port.

Check the warranty page 277

MAC

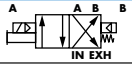
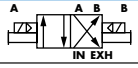
Series 700

Function	Port size	Flow (Max)	Individual mounting
4/2	**G1/8" - G1/4"**	**700 Nl/min**	inline

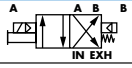
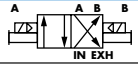
OPERATIONAL BENEFITS

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

HOW TO ORDER

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

HOW TO ORDER VALVE WITH FLOW CONTROLS

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

OPTIONS

7XXC-XX-PX-*XXYZZ*

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

Check the warranty page 277

MAC

Series 700

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator : 1.3 to 10 bar	double operator : 0.7 to 10 bar	
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator : 1.3 to 10 bar	Double operator : 0.7 to 10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 600 Nl/min, G1/4" : 700 Nl/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 6.4 ms	De-energize : 8.5ms
	50Hz/6 W	Energize : 4-10 ms	De-energize : 7-13 ms

Spare parts :

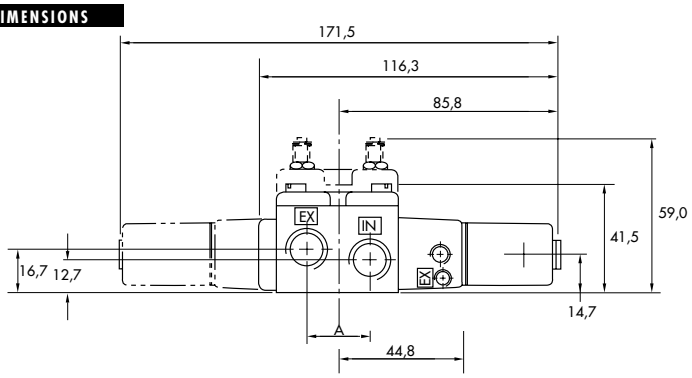
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07002.

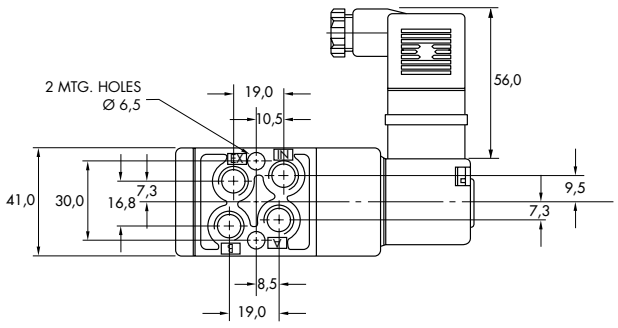
Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





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

Check the warranty page 277

MAC

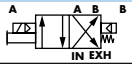
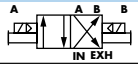
Series 700

Function	Port size	Flow (Max)	Manifold mounting
4/2	**G1/8" - G1/4"**	**800 Nl/min**	stacking

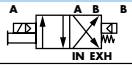
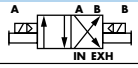
OPERATIONAL BENEFITS

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

HOW TO ORDER

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

HOW TO ORDER VALVE WITH FLOW CONTROLS

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

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

Check the warranty page 277

MAC

Series 700

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

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

Spare parts :

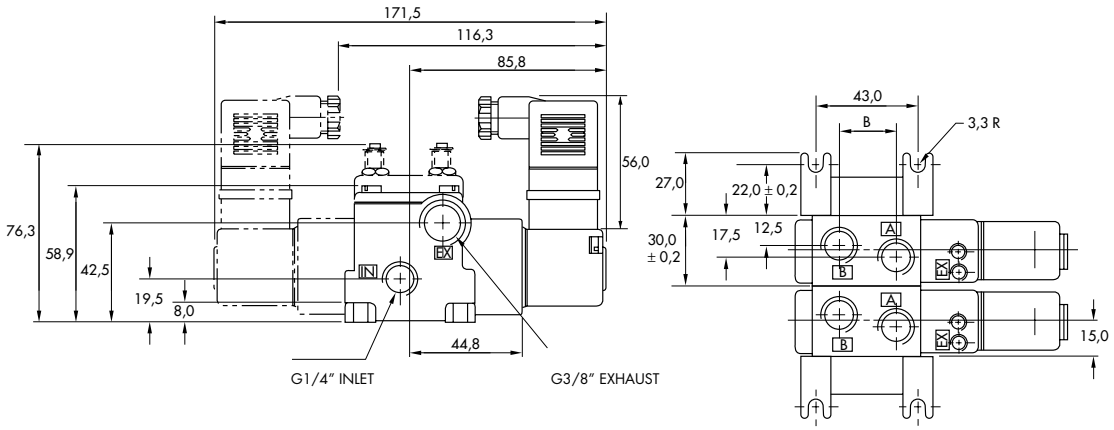
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07004. • Inlet & exhaust isolator : N-07005. • Inlet isolator : N-07006.
- Exhaust isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



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

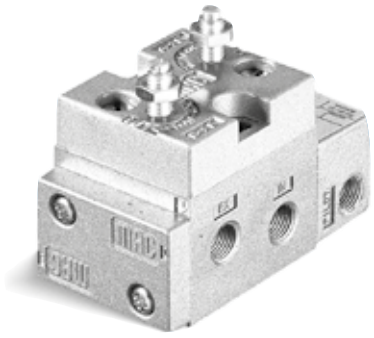
Check the warranty page 277

Series **700**

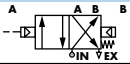
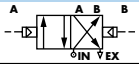
Function	Port size	Flow (Max)	Individual mounting
4/2	**G1/8" - G1/4"**	**700 Nl/min**	Inline

OPERATIONAL BENEFITS

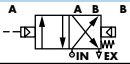
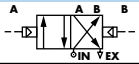
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6.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



HOW TO ORDER

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

HOW TO ORDER VALVE WITH FLOW CONTROLS

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

Air pilot port : G1/8".

Check the warranty page 277

MAC

Series 700

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

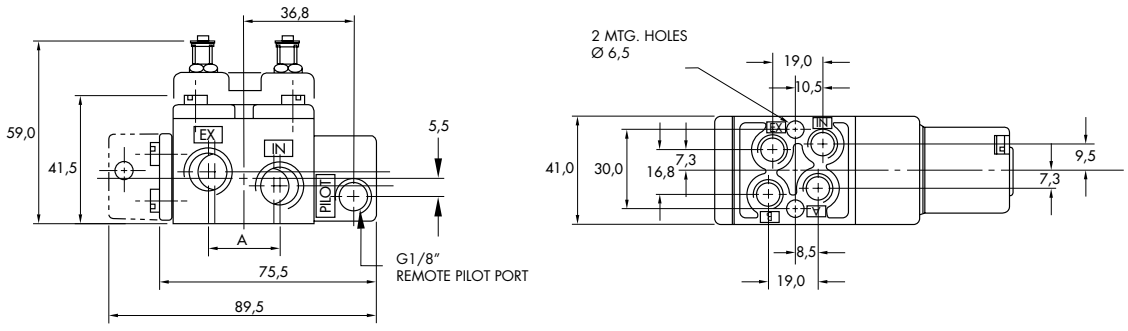
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.3 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



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

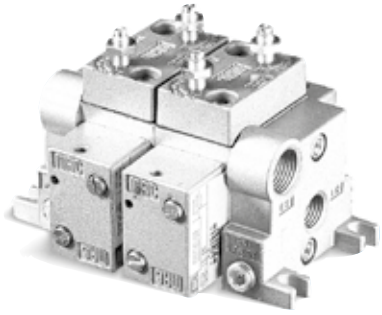
Check the warranty page 277

Series 700

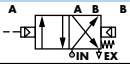
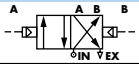
Function	Port size	Flow (Max)	Manifold mounting
4/2	**G1/8" - G1/4"**	**800 Nl/min**	stacking

OPERATIONAL BENEFITS

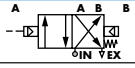
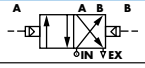
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6.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



HOW TO ORDER

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

HOW TO ORDER VALVE WITH FLOW CONTROLS

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

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

Air pilot port : G1/8".

Check the warranty page 277

Series 700

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

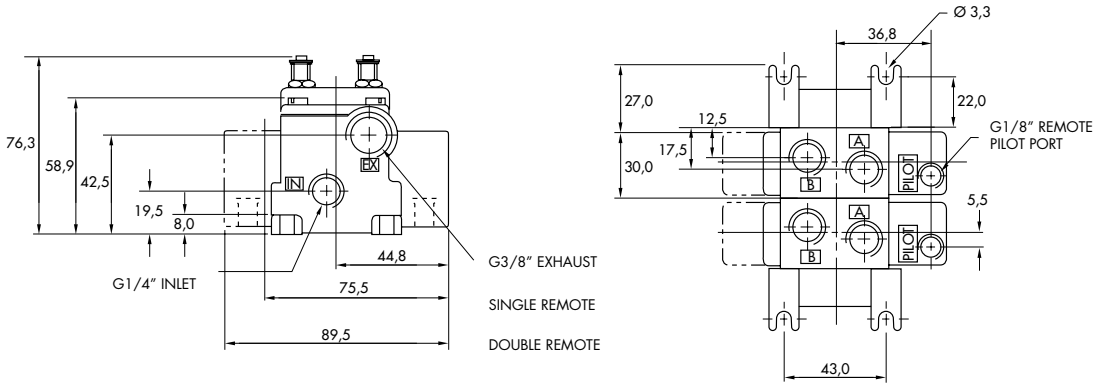
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.3 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



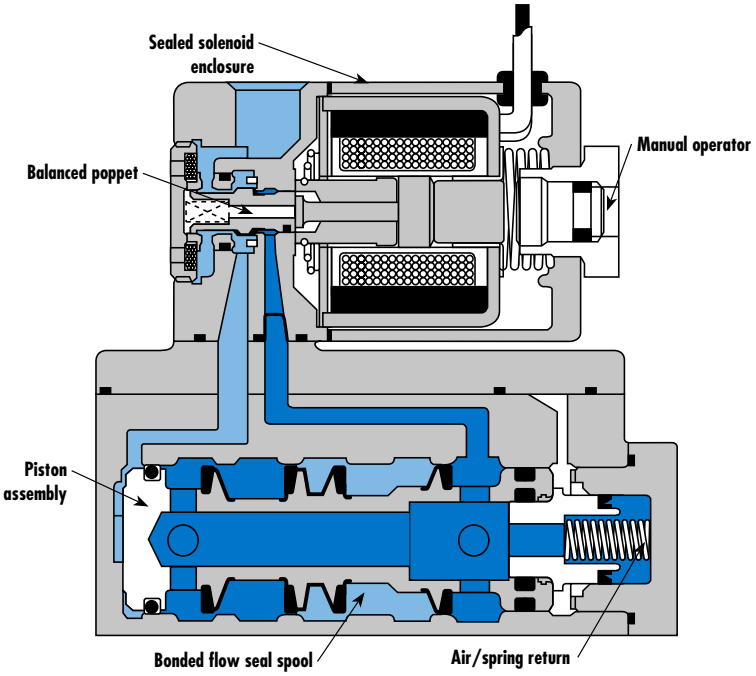
Check the warranty page 277

Individual mounting

inline

Manifold mounting

stacking



SERIES FEATURES

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

Check the warranty page 277

Series 900

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

The 900 Series is a small Inline 4-way valve with a flow of up to 1400 Nl/min. This series provides fast response, long life and high flow not commonly found in this size valve.

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

SPECIAL APPLICATIONS:

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

VACUUM APPLICATIONS (remote Air Models Only)-Connect the vacuum source to the Exhaust port and leave the Inlet open to atmosphere. Also specify MOD 0158 which provides a heavy duty spring in lieu of air/spring.

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

Check the warranty page 277

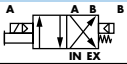
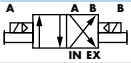
MAC Series 900

Function	Port size	Flow (Max)	Individual mounting
4/2	**G1/8" - G1/4"**	**1200 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

Check the warranty page 277

MAC

Series 900

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

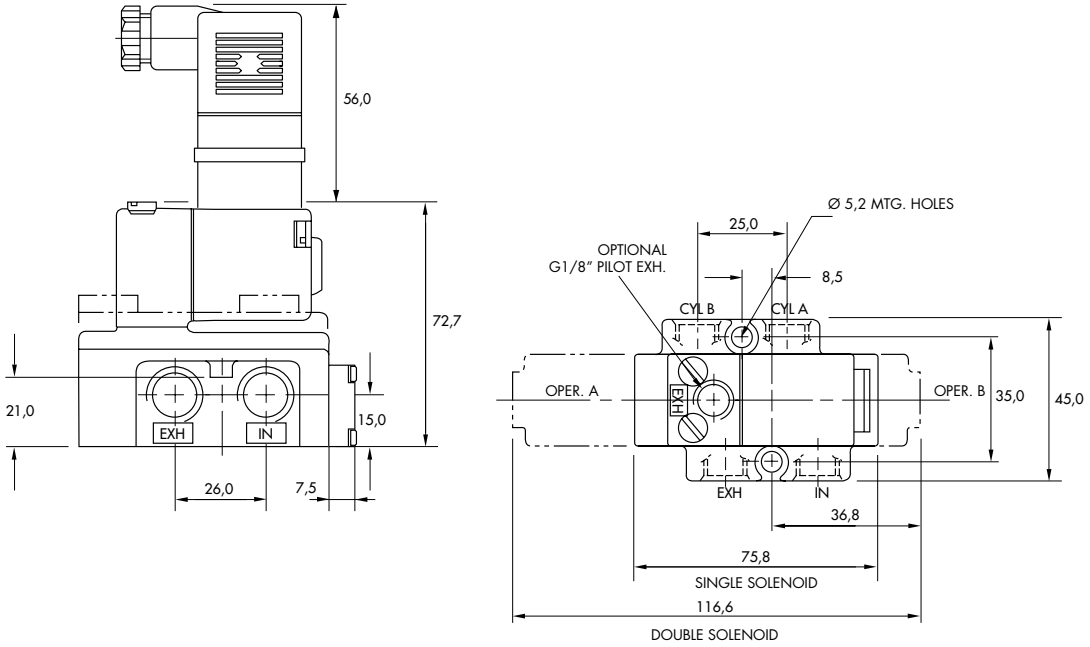
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 1.7 to 10 bar	Double operator : 0.7 to 10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



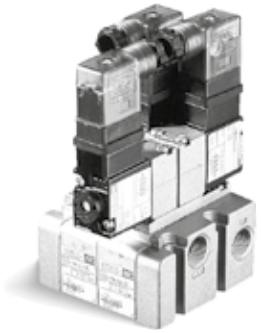
Check the warranty page 277

MAC Series 900

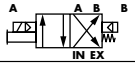
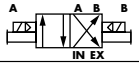
Function	Port size	Flow (Max)	Manifold mounting
4/2	**G1/8" - G1/4" - G3/8"**	**1400 Nl/min**	stacking

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

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

Check the warranty page 277

MAC

Series 900

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

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

Spare parts :

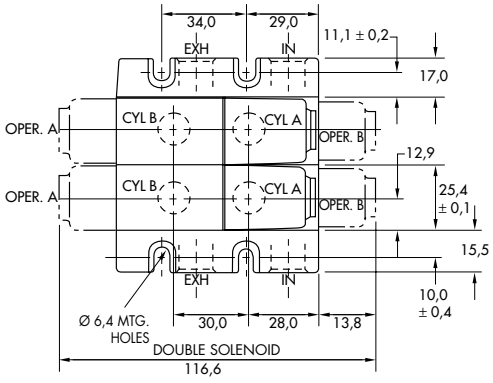
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16367. • Mounting screw pilot to main valve : 35208.
- Pressure seal between valves : 16358. • Tie-rod (x2) : 19615. • Inlet & exhaust isolator : N-09002. • Inlet isolator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

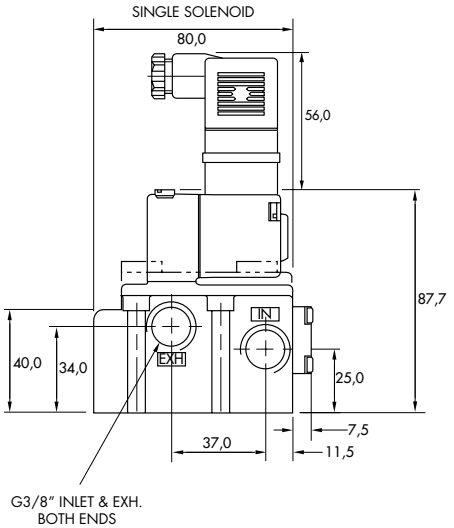
Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





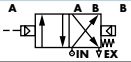
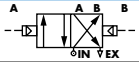
Check the warranty page 277

Function	Port size	Flow (Max)	Individual mounting
4/2	**G1/8" - G1/4"**	**1400 Nl/min**	Inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Air pilot port : G1/8".

Series 900

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

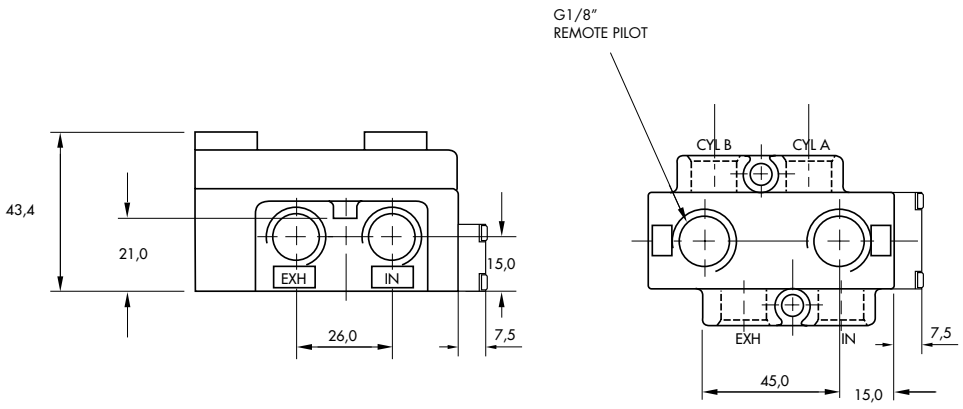
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



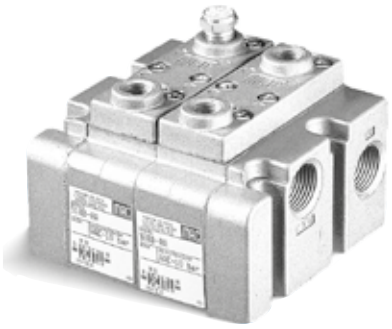
Check the warranty page 277

Series 900

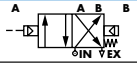
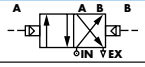
Function	Port size	Flow (Max)	Manifold mounting
4/2	**G1/8" - G1/4"**	**1400 Nl/min**	stacking

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

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

Check the warranty page 277

Series 900

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

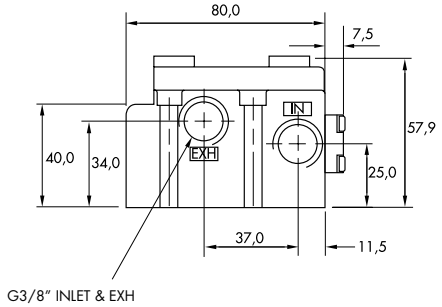
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40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

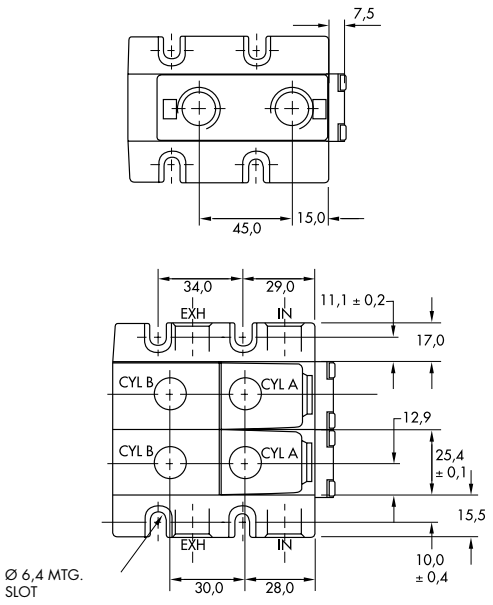
Spare parts : • Remote air operator (single operator) : R-09002-01P. • Remote air operator (double operator) : R-09002-02P.
• Pressure seal between valves : 16358. • Tie-rod (x2) : 19615.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





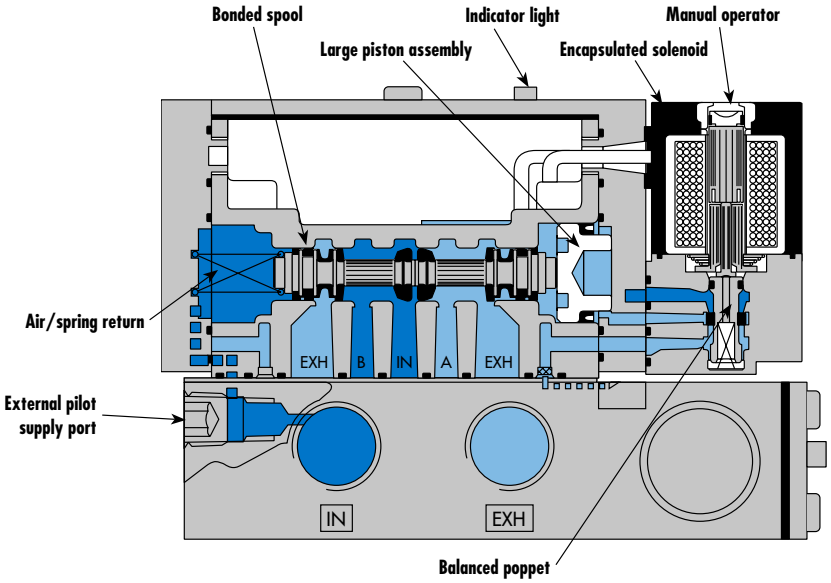
Check the warranty page 277

Individual mounting

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

Manifold mounting

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



SERIES FEATURES

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

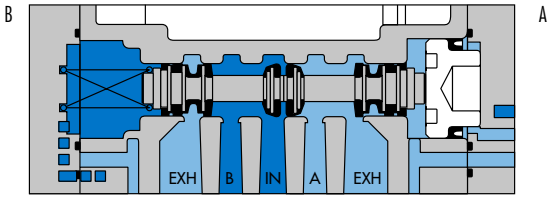
Check the warranty page 277

Series 82

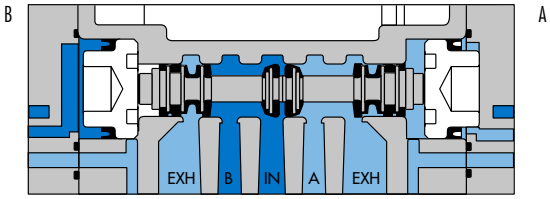
100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

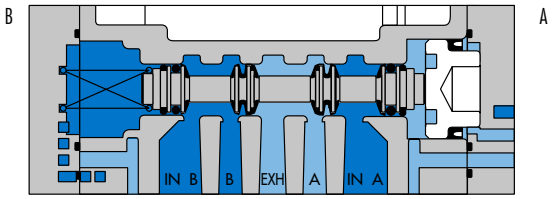
SPOOL CONFIGURATIONS



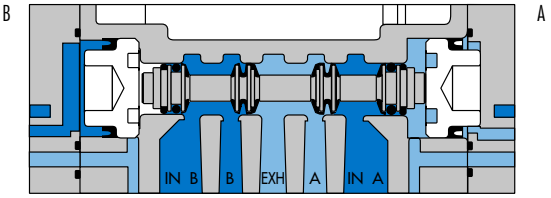
SINGLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



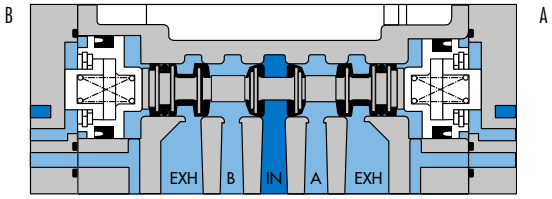
DOUBLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



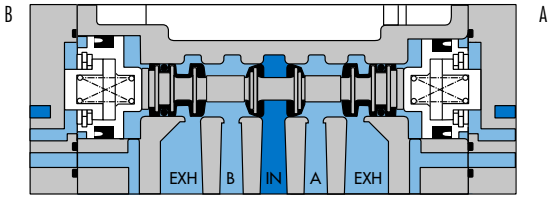
SINGLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



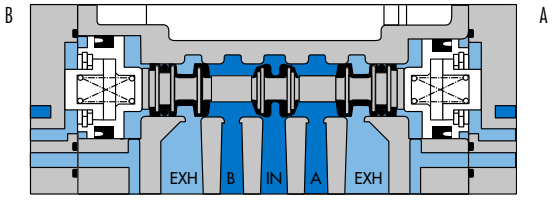
DOUBLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



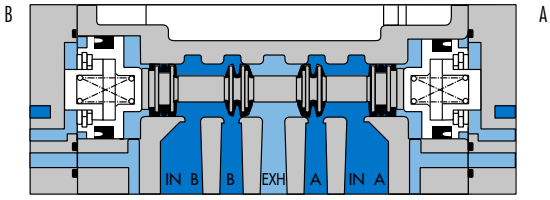
3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION SINGLE PRESSURE
PRESSURE CENTER



3 POSITION DUAL PRESSURE
PRESSURE CENTER

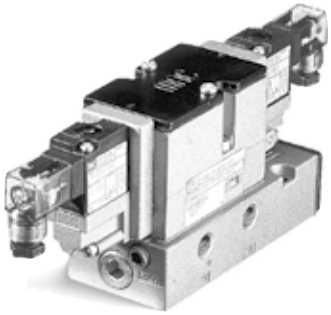
Check the warranty page 277

MAC Series 82

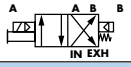
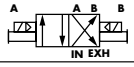
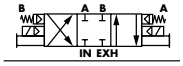
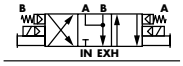
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/8" - G1/4" - G3/8"**	**1350 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		82A-AB-000-TM-D*XXX-XXX*	82A-BB-000-TM-D*XXX-XXX*	82A-EB-000-TM-D*XXX-XXX*	82A-FB-000-TM-D*XXX-XXX*	82A-GB-000-TM-D*XXX-XXX*
sub-base	Internal	82A-AB-DAA-TM-D*XXX-XXX*	82A-BB-DAA-TM-D*XXX-XXX*	82A-EB-DAA-TM-D*XXX-XXX*	82A-FB-DAA-TM-D*XXX-XXX*	82A-GB-DAA-TM-D*XXX-XXX*
G1/8"	External	82A-AB-DAD-TM-D*XXX-XXX*	82A-BB-DAD-TM-D*XXX-XXX*	82A-EB-DAD-TM-D*XXX-XXX*	82A-FB-DAD-TM-D*XXX-XXX*	82A-GB-DAD-TM-D*XXX-XXX*
sub-base	Internal	82A-AB-EAA-TM-D*XXX-XXX*	82A-BB-EAA-TM-D*XXX-XXX*	82A-EB-EAA-TM-D*XXX-XXX*	82A-FB-EAA-TM-D*XXX-XXX*	82A-GB-EAA-TM-D*XXX-XXX*
G1/4"	External	82A-AB-EAD-TM-D*XXX-XXX*	82A-BB-EAD-TM-D*XXX-XXX*	82A-EB-EAD-TM-D*XXX-XXX*	82A-FB-EAD-TM-D*XXX-XXX*	82A-GB-EAD-TM-D*XXX-XXX*
sub-base	Internal	82A-AB-FAA-TM-D*XXX-XXX*	82A-BB-FAA-TM-D*XXX-XXX*	82A-EB-FAA-TM-D*XXX-XXX*	82A-FB-FAA-TM-D*XXX-XXX*	82A-GB-FAA-TM-D*XXX-XXX*
G3/8"	External	82A-AB-FAD-TM-D*XXX-XXX*	82A-BB-FAD-TM-D*XXX-XXX*	82A-EB-FAD-TM-D*XXX-XXX*	82A-FB-FAD-TM-D*XXX-XXX*	82A-GB-FAD-TM-D*XXX-XXX*

SOLENOID OPERATOR ➤ D ***XX X- X XX*** *

XX	Voltage
AB	220V~/50Hz
AA	110V~/50Hz
AC	24V~/50Hz
FB	24V=/1,8W
DA	24V=/5,4W
DF	24V=/12,7W

X	Wire length
A	45 cm (Flying leads)
J	Connector

X	Manual operator
1	Non-locking
2	Locking

XX	Electrical connection
KA	Square connector
KD	Square connector with light
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads

Note : KD connector shown in photo.

* Other options available, see page 309.

OPTIONS

82A-AB-000-TM-D*XXX-XXX*

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

82A-AB-000-TM-D*XXX-XXX*

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

82A-XX-EAA-TM-D*XXX-XXX*

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

Check the warranty page 277

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 900 Nl/min, G1/4" : 1300 Nl/min, G3/8" : 1350 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
Response times :	24 V=/5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize :6-13 ms

Spare parts :

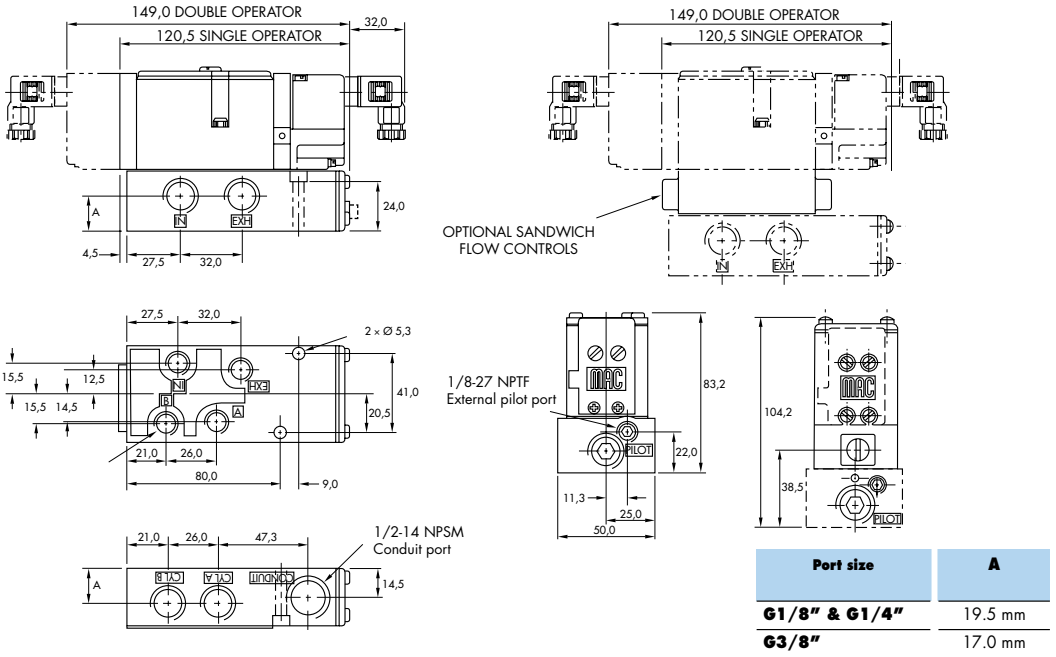
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A
G1/8" & G1/4"	19.5 mm
G3/8"	17.0 mm

Check the warranty page 277

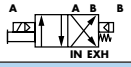
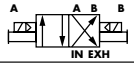
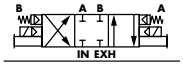
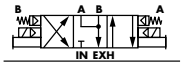
MAC Series 82

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/8" - G1/4" - G3/8"**	**1350 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ D **XX** P- **X** DA*

XX	Voltage
AB	220V~/50Hz
AA	110V~/50Hz
AC	24V~/50Hz
FB	24V=/1,8W
DA	24V=/5,4W
DF	24V=/12,7W

X	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 309.

OPTIONS

82A-AA-000-TM-D**xx**P-xDA

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

82A-AA-EAA-TM-D**xx**P-xDA

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

Check the warranty page 277

MAC

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

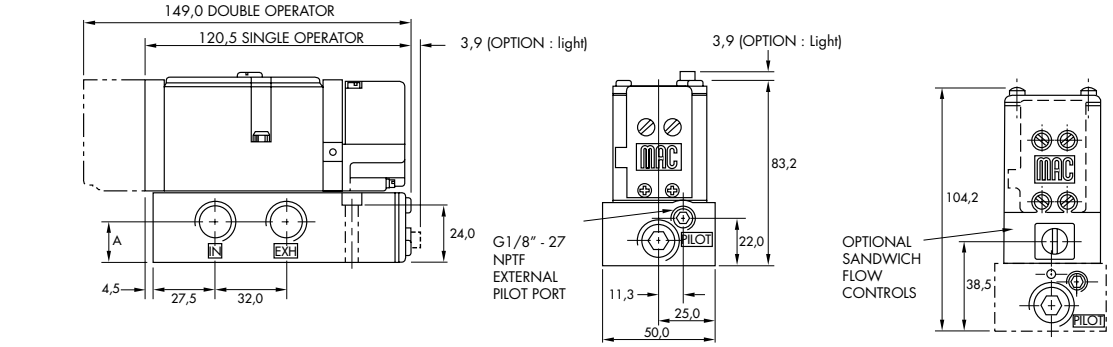
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 900 Nl/min, G1/4" : 1300 Nl/min, G3/8" : 1350 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
Response times :	24 V=/5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize :6-13 ms

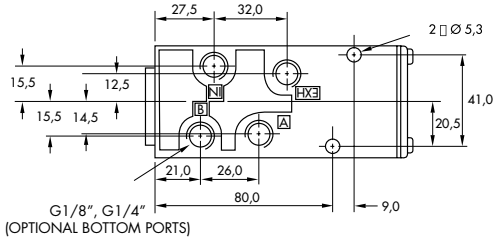
Spare parts : • Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013. • Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXP-XDA, including seal 16447. • Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446. • Mounting screw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

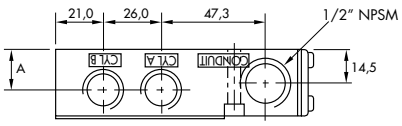
Options : • NPTF threads. • Flow controls (Part N°. FC82A-AA) • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)







Port size	A
G1/8" - G1/4"	19.5
G3/8"	17.0

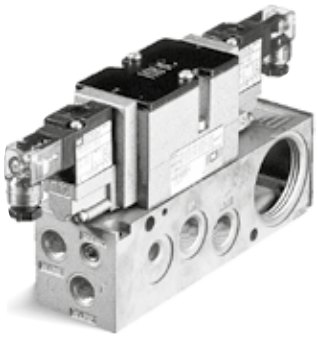
Check the warranty page 277

MAC Series 82

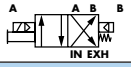
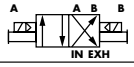
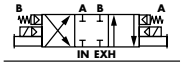
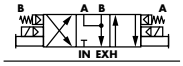
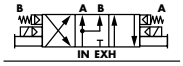
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G1/4" - G3/8"**	**1350 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

SOLENOID OPERATOR ➤ D *XX X - X XX* *

XX	Voltage
AB	220V~/50Hz
AA	110V~/50Hz
AC	24V~/50Hz
FB	24V=/1,8W
DA	24V=/5,4W
DF	24V=/12,7W

X	Wire length
A	45 cm (Flying leads)
J	Connector

X	Manual operator
1	Non-locking
2	Locking

XX	Electrical connection
KA	Square connector
KD	Square connectorwith light
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads

Note : KD connector shown in photo.

* Other options available, see page 309.

OPTIONS

82A-AB-000-TM-D*XXX-XXX*

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

82A-XX-EKA-TM-D*XXX-XXX*

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

Check the warranty page 277

MAC

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1300 Nl/min, G3/8" : 1350 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
Response times :	24 V=/5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize :6-13 ms

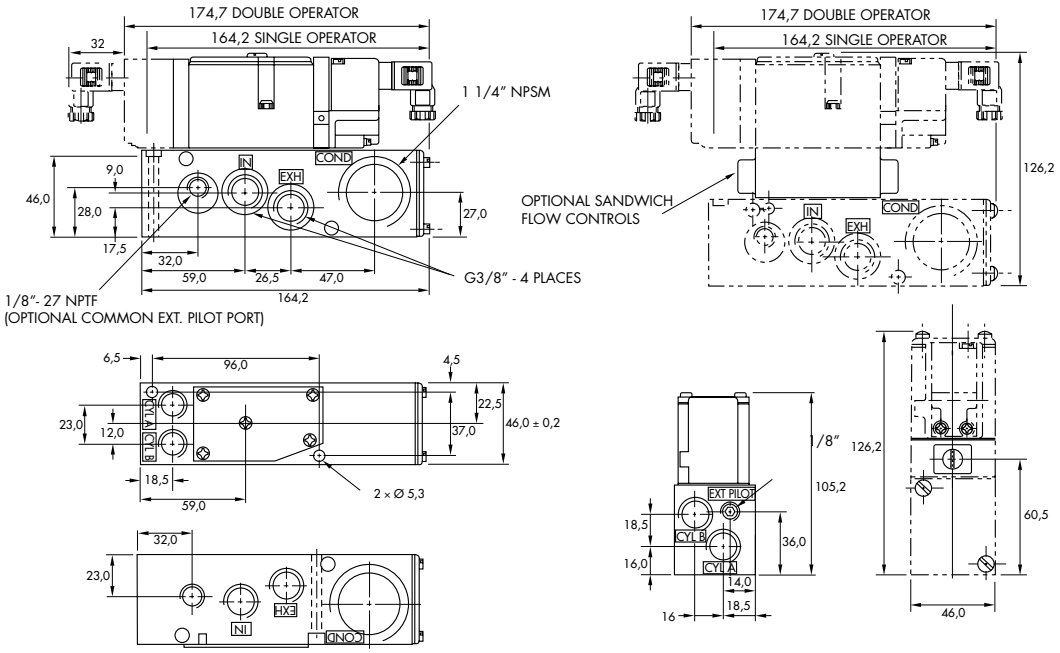
Spare parts :

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

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

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

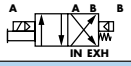
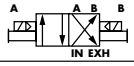
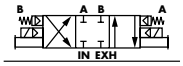
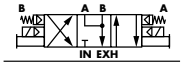
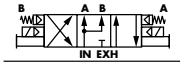
Series 82

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G1/4" - G3/8"**	**1350 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ D **XX** P- **X** DA*

XX	Voltage
AB	220V~/50Hz
AA	110V~/50Hz
AC	24V~/50Hz
FB	24V=/1,8W
DA	24V=/5,4W
DF	24V=/12,7W

X	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 309.

OPTIONS

82A-AA-000-TM-D**xx**P-xDA

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

82A-XX-EKA-TM-D**xx**P-xDA

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

Check the warranty page 277

MAC

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1300 Nl/min, G3/8" : 1350 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
Response times :	24 V=/5.4 W	Energize : 9 ms	De-energize : 6 ms
	50Hz/6 W	Energize : 5-12 ms	De-energize :6-13 ms

Spare parts :

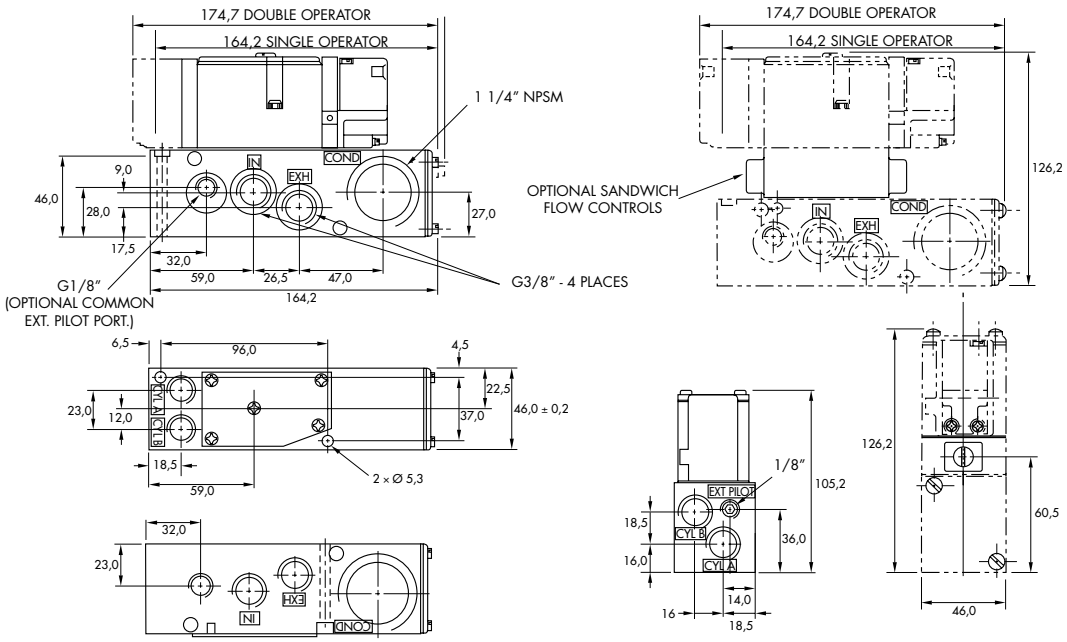
- Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXP-XDA, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

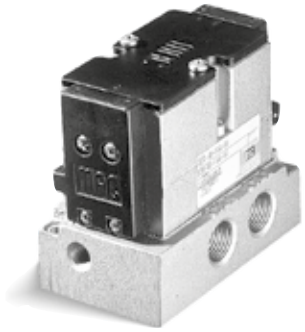
Series **82**

Remote air valves

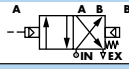
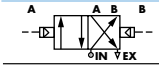
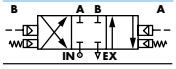
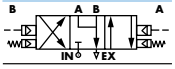
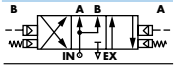
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/8" - G1/4" - G3/8"**	**1350 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	82A-AB-000-RA	82A-BB-000-RA	82A-EB-000-RA	82A-FB-000-RA	82A-GB-000-RA
Sub-base G1/8"	82A-AB-DAA-RA	82A-BB-DAD-RA	82A-EB-DAD-RA	82A-FB-DAD-RA	82A-GB-DAD-RA
Sub-base G1/4"	82A-AB-EAA-RA	82A-BB-EAD-RA	82A-EB-EAD-RA	82A-FB-EAD-RA	82A-GB-EAD-RA
Sub-base G3/8"	82A-AB-FAA-RA	82A-BB-FAD-RA	82A-EB-FAD-RA	82A-FB-FAD-RA	82A-GB-FAD-RA

OPTIONS

82A-AB-000-RA

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

Check the warranty page 277

MAC

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

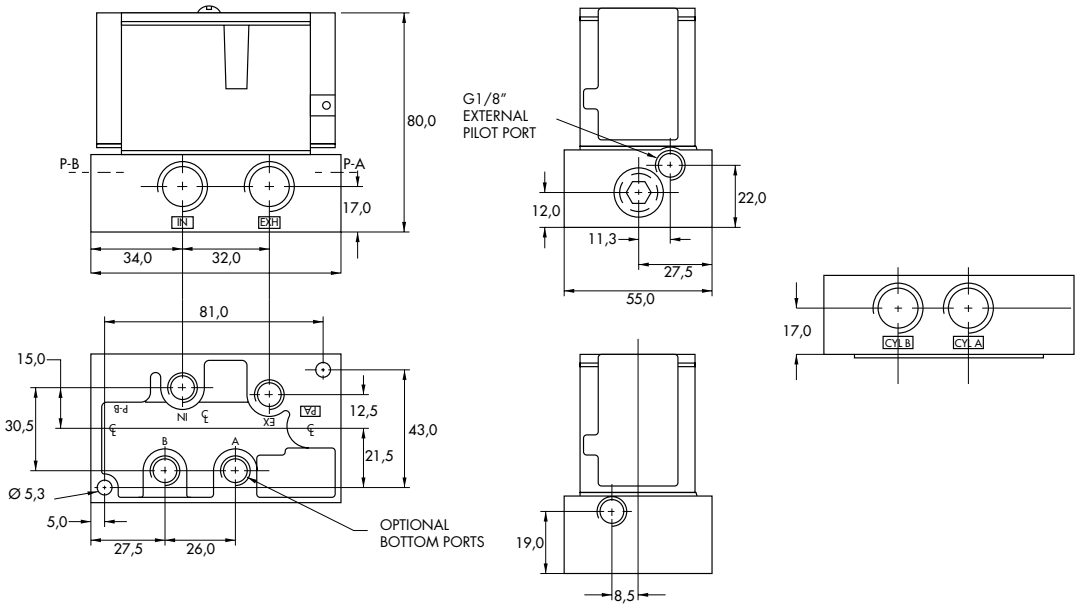
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



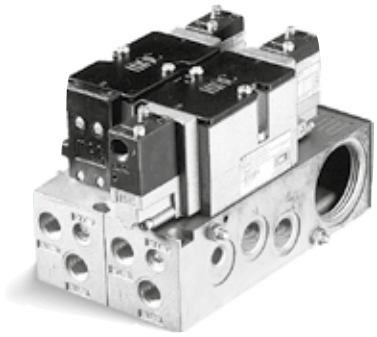
Check the warranty page 277

Series 82

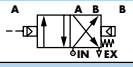
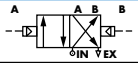
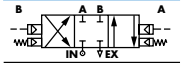
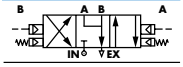
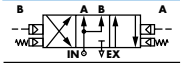
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G1/4" - G3/8"**	**1350 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

OPTIONS

82A-AB-000-TM-RA14

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

Manifold fastening kit : N-82005-01P.

Check the warranty page 277

MAC

Series 82

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

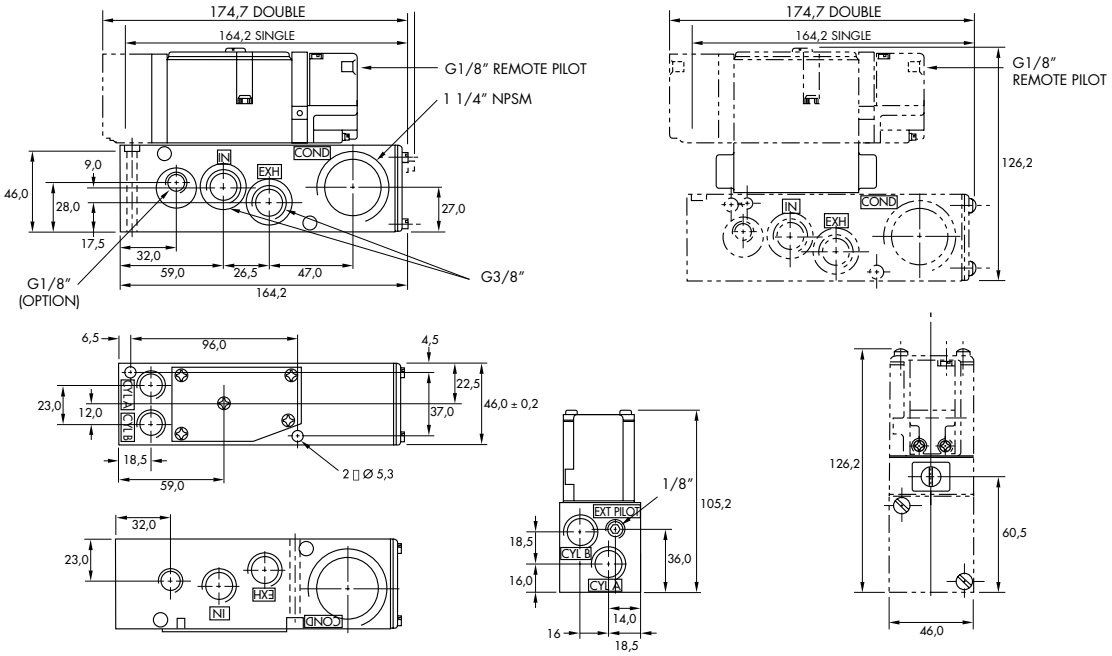
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)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

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

Options :
- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

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

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

1. VOLTAGE

-D XX X - X XX	VOLTAGE
AA	120 V~/60 Hz - 110 V/50 Hz
AB	240 V~/60 Hz - 220 V/50 Hz
AC	24 V~/60 Hz - 24 V/50 Hz
AD	24 V~/60 Hz
AE	200 V~/60 Hz
AF	240 V~/50 Hz
AG	240 V~/50 Hz
DA	24 V=/5,4 W
DB	12 V=/5,4 W
DC	12 V=/7,5 W
DD	24 V=/7,3 W
DE	12 V=/12,7 W CLSF only
DF	24 V=/12,7 W CLSF only
DK	110 V=/4,7 W
DL	64 V=/6 W
DM	36 V=/5,3 W
DN	6 V=/6 W
DP	48 V=/5,8 W
DU	24 V=/6 W
EA	12 V=/6 W
FA	12 V=/1,8 W
FB	24 V=/1,8 W
FE	12 V=/2,4 W
FF	24 V=/2,4 W

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

2. WIRE LENGTH

-D XX X - X XX	WIRE LENGTH
A	45 cm - 18"
B	60 cm - 24"
C	90 cm - 36"
D	120 cm - 48"
E	180 cm - 72"
F	240 cm - 96"
J	For external plug-in connector ("J", "K" & "T" type electrical connection)
P	For plug-in valves (82 Series only)

4. ELECTRICAL CONNECTION

-D XX X - X XX	ELECTRICAL CONNECTION
BA	Flying leads
BK	BA with protection diode
BL	BA with protection varistor (M.O.V.)
** CA	1/2" NPS conduit
** CM	1/2" NPS metal conduit
** CN	1/2" NPS metal conduit w/ground
** JB	Rectangular connector
** JD	Rectangular connector with light
** JM	Rectangular connector, male only
KA	Square connector
KB	Square connector with protection diode
KC	Square connector with protection varistor (M.O.V.)
KD	Square connector with light
KE	Square connector with light and protection diode
KF	Square connector with light and protection varistor (M.O.V.)
KG	Square connector with LED light & diode
KJ	Square connector (male only)
KK	Square connector with protection diode (male only)
KL	Square connector with protection varistor (male only) (M.O.V.)
*** MA	Electrical common conduit
TA	Dual tabs
TB	TA with protection diode
TD	TA with light
TE	TA with light and protection diode
TJ	Dual tabs (male only)
TK	TJ with protection diode
TM	TJ with light
TN	TJ with light and protection diode
DA*	Plug-in connector
DK*	DA with protection diode
DL*	DA with protection varistor (M.O.V.)

* To be used with 82 Series only

** Inline valves only for 35 & 45 series. No restrictions for 82 series.

*** Stacking valves only for 35 & 45 series. Conduit end plate kit required, one per stack.

35 series : M-35002-01P
45 series : M-45005-01P

Check the warranty page 277

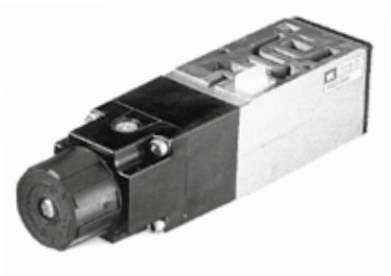
Series **PR82A**

Pressure regulators

Sandwich pressure regulator with manual adjust locking knob.

OPERATIONAL BENEFITS

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



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port A	Dual pressure * Regulator B end Regulated pressure to port B	Dual pressure * Dual regulator Two regulated pressures to ports A and B
No gauge	PR82A-GADA	PR82A-GCDA	PR82A-GBDA	PR82A-GDDA
Gauge parallel to regulator	PR82A-GACA	PR82A-GCCA	PR82A-GBCA	PR82A-GDCA
Gauge perpendicular to regulator	PR82A-GABA	PR82A-GCBA	PR82A-GBBA	PR82A-GDBA

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port A	Dual pressure * Regulator B end Regulated pressure to port B	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR82A-HADA	PR82A-HCDA	PR82A-HBDA	PR82A-HDDA
Gauge parallel to regulator	PR82A-HACA	PR82A-HCCA	PR82A-HBCA	PR82A-HDCA
Gauge perpendicular to regulator	PR82A-HABA	PR82A-HCBA	PR82A-HBBA	PR82A-HDBA

Note : regulating range for above models is 0-8 bar. For other ranges see technical data page.

* To be used with dual pressure valves.

ADJUSTMENT OPTIONS

PR82A-*xxxx*

- Replace by A for "plug-in" with slotted stem adjustment.
- Replace by B for "non plug-in" with slotted stem adjustment.
- Replace by K for "plug-in" with locking slotted stem adjustment.
- Replace by L for "non plug-in" with locking slotted stem adjustment.

****SELECTOR OPTIONS** selects pressure to inlet of adjacent valve.

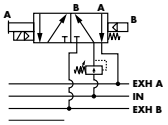
PR82A-*xxxx*

- Replace by S for dual regulators.
- Replace by T for regulator on "B" end with by-pass on "A" end.

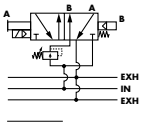
** This option must be used with a single pressure valve and selector manifold base.

Manual adjust

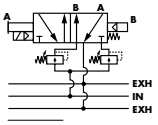
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR82A**

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 8 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1080 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PR82A-J0AA (KNOB), PR82A-C0AA (SLOTTED STEM), PR82A-M0AA (LOCKING SLOTTED STEM).
- Gauges : N-82016-01 (0-8 bar perpendicular)
  N-82016-02 (0-8 bar parallel)
  N-82016-03 (0-5.3 bar perpendicular)
  N-82016-04 (0-5.3 bar parallel)
  N-82016-05 (0-2 bar perpendicular)
  N-82016-06 (0-2 bar parallel)

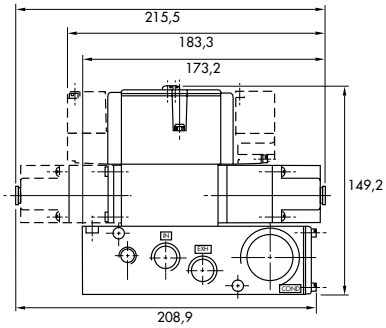
Regulating range options :

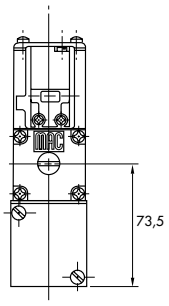
PR82A-XXXA

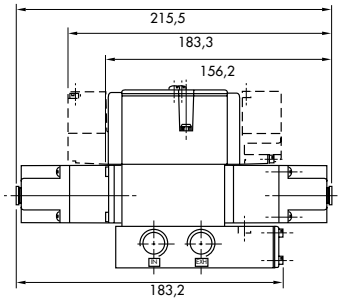
Replace by B	- 0 to 5.3 bar
Replace by C	- 0 to 2 bar
Replace by D	- 0 to 8 bar on "A" end - 0 to 5.3 bar on "B" end
Replace by E	- 0 to 8 bar on "B" end - 0 to 5.3 bar on "A" end
Replace by F	- 0 to 8 bar on "A" end - 0 to 2 bar on "B" end
Replace by G	- 0 to 8 bar on "B" end - 0 to 2 bar on "A" end
Replace by H	- 0 to 5.3 bar on "A" end - 0 to 2 bar on "B" end
Replace by J	- 0 to 5.3 bar on "B" end - 0 to 2 bar on "A" end

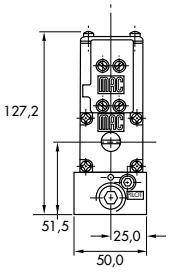
DIMENSIONS

Dimensions shown are metric (mm)

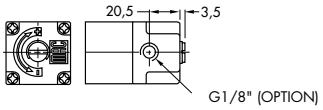




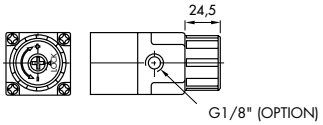




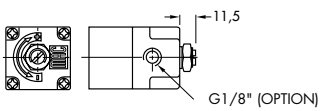
SLOTTED STEM



LOCKING KNOB



LOCKING SLOTTED STEM



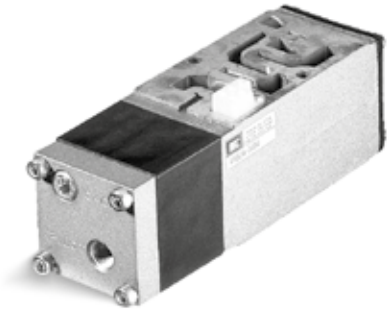
Check the warranty page 277

Series **PR82A**

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port A	Dual pressure * Regulator B end Regulated pressure to port B	Dual pressure * Dual regulator Two regulated pressures to ports A and B
No gauge	PR82A-DADA	PR82A-DCDA	PR82A-DBDA	PR82A-DDDA
Gauge parallel to regulator	PR82A-DACA	PR82A-DCCA	PR82A-DBCA	PR82A-DDCA
Gauge perpendicular to regulator	PR82A-DABA	PR82A-DCBA	PR82A-DBBA	PR82A-DDBA

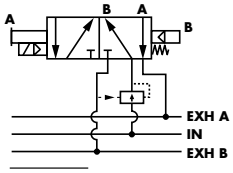
REGULATORS FOR "NON PLUG-IN" AND REMOTE AIR VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port A	Dual pressure * Regulator B end Regulated pressure to port B	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR82A-EADA	PR82A-ECDA	PR82A-EBDA	PR82A-EDDA
Gauge parallel to regulator	PR82A-EACA	PR82A-ECCA	PR82A-EBCA	PR82A-EDCA
Gauge perpendicular to regulator	PR82A-EABA	PR82A-ECBA	PR82A-EBBA	PR82A-EDBA

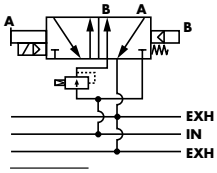
* To be used with dual pressure valves.

Air adjust

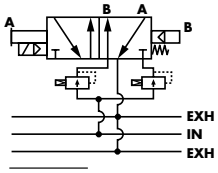
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR82A**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

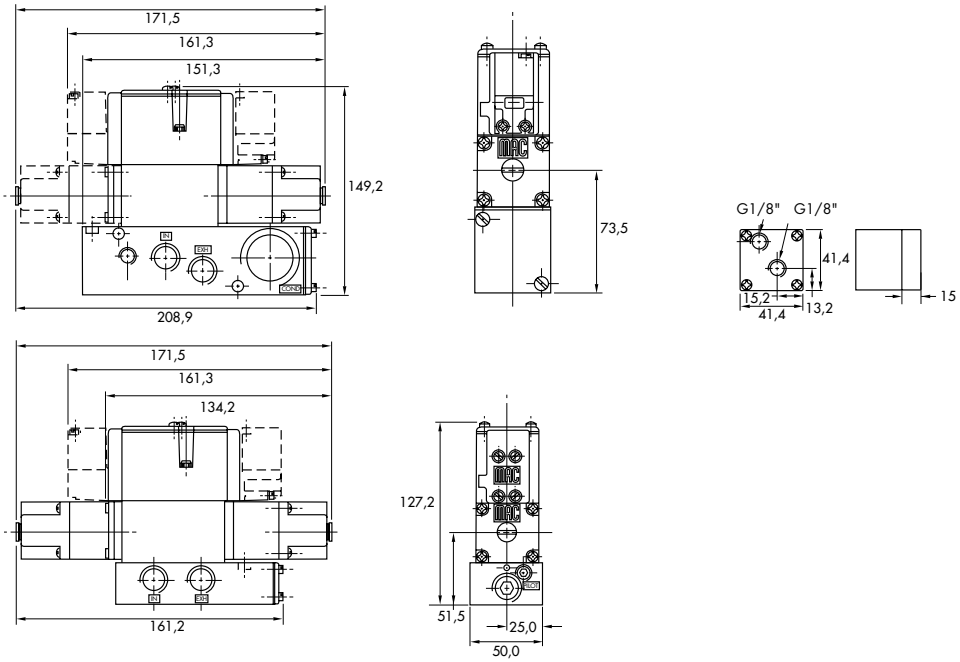
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1080 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PR82A-F0AA.
- Gauges : N-82016-01 (0-8 bar perpendicular)
  N-82016-02 (0-8 bar parallel)

DIMENSIONS

Dimensions shown are metric (mm)



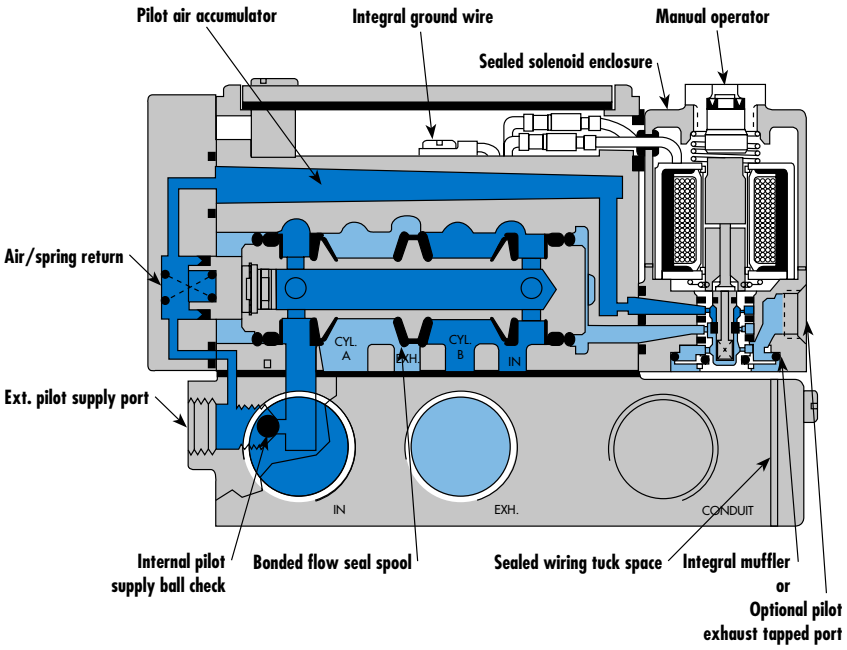
Check the warranty page 277

Individual mounting

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

Manifold mounting

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



SERIES FEATURES

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

Check the warranty page 277

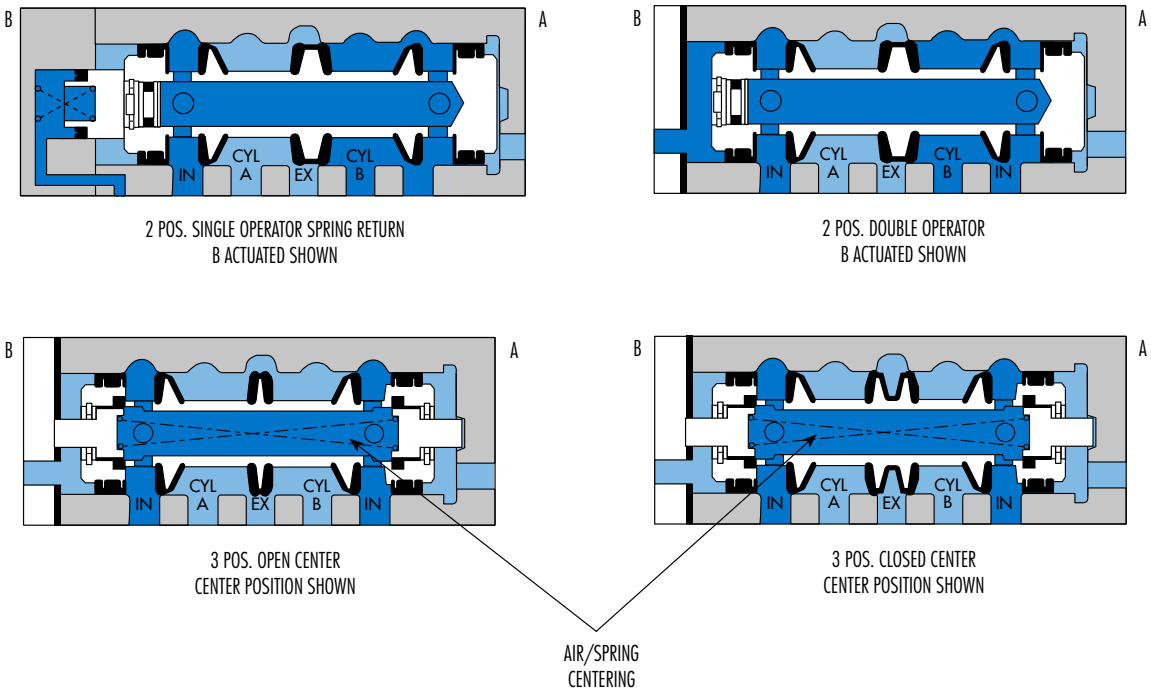
MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

SPOOL CONFIGURATIONS



2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN

2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN

3 POS. OPEN CENTER
CENTER POSITION SHOWN

3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING

VALVE CONFIGURATIONS AVAILABLE

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

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

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

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

Check the warranty page 277

MAC

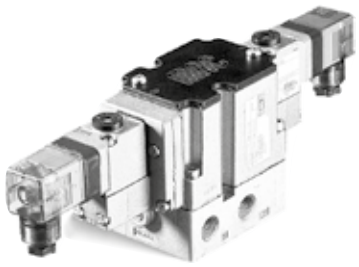
Series 6300

Direct solenoid and solenoid pilot operated valves

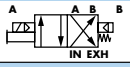
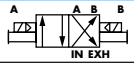
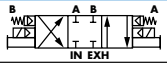
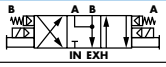
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/4" - G3/8" - G1/2"**	**3000 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connectorwith light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6312D-XXX-PM-*XXYZZ*

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

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

Check the warranty page 277

MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2000 Nl/min, G3/8" : 2600 Nl/min, G1/2" : 3000 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

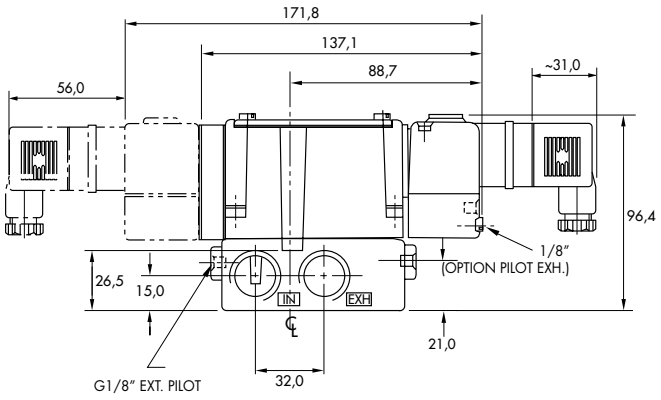
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

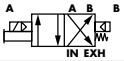
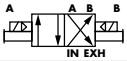
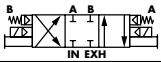
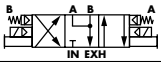
Series 6300

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/4" - G3/8" - G1/2"**	**3000 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
Valve less base		6311D-000-PM-*XXY*DA	6321D-000-PM-*XXY*DA	6331D-000-PM-*XXY*DA	6341D-000-PM-*XXY*DA
sub-base	Internal	6311D-151-PM-*XXY*DA	6321D-151-PM-*XXY*DA	6331D-151-PM-*XXY*DA	6341D-151-PM-*XXY*DA
G1/4"	External	6311D-161-PM-*XXY*DA	6321D-161-PM-*XXY*DA	6331D-161-PM-*XXY*DA	6341D-161-PM-*XXY*DA
sub-base	Internal	6311D-251-PM-*XXY*DA	6321D-251-PM-*XXY*DA	6331D-251-PM-*XXY*DA	6341D-251-PM-*XXY*DA
G3/8"	External	6311D-261-PM-*XXY*DA	6321D-261-PM-*XXY*DA	6331D-261-PM-*XXY*DA	6341D-261-PM-*XXY*DA
sub-base	Internal	6311D-351-PM-*XXY*DA	6321D-351-PM-*XXY*DA	6331D-351-PM-*XXY*DA	6341D-351-PM-*XXY*DA
G1/2"	External	6311D-361-PM-*XXY*DA	6321D-361-PM-*XXY*DA	6331D-361-PM-*XXY*DA	6341D-361-PM-*XXY*DA

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

SOLENOID OPERATOR ➤ ***XX Y*** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

6311D-XXX-PM-*XXY*DA

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

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the base.
2. To order bases without the valve, choose the base from the above table, then add 6300D as a prefix. Example 6300D-151.

Check the warranty page 277

MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 2000 Nl/min, G3/8" : 2600 Nl/min, G1/2" : 3000 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

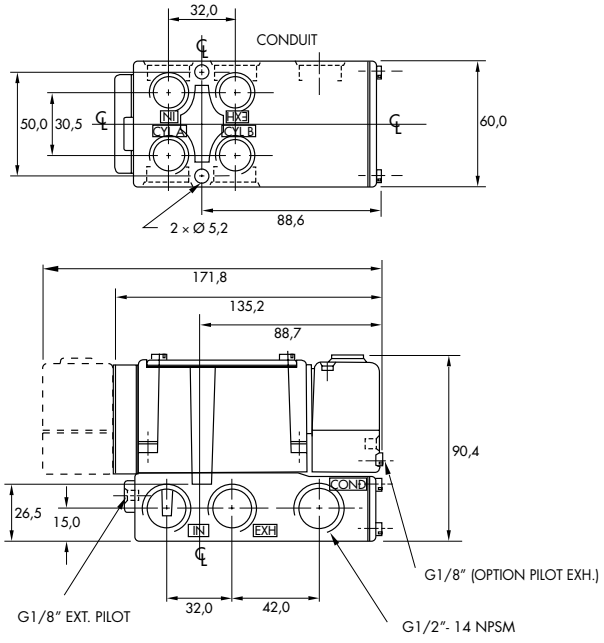
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

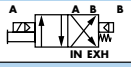
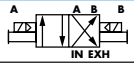
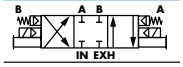
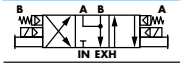
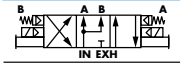
Series 6300

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/8" - G1/2"**	**3000 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ➤ ***XX Y ZZ****

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6312D-XXX-PM-*XXYZZ*

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

MODIFICATIONS - **MOD 0210** Bottom inlet port in addition to side inlet port - **TO ORDER** : 6312D-571-PM-111JA **MOD 0210**

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-671.
3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
4. Manifolds for solenoid and remote air operated valves must be ganged separately.

Check the warranty page 277

MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 2600 Nl/min, G1/2" : 3000 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

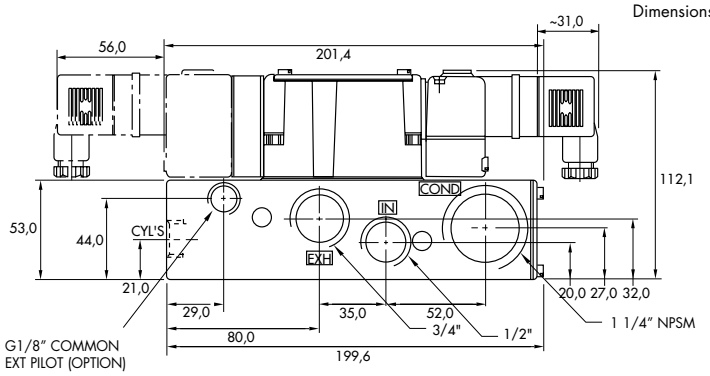
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

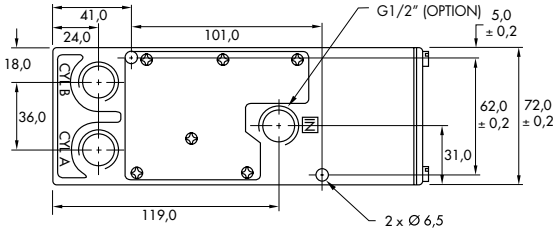
Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





Check the warranty page 277

MAC

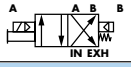
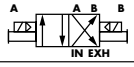
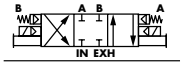
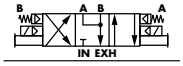
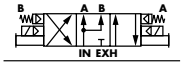
Series 6300

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/8" - G1/2"**	**3000 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6311D-000-PM-**XXY**DA	6321D-000-PM-**XXY**DA	6331D-000-PM-**XXY**DA	6341D-000-PM-**XXY**DA	6351D-000-PM-**XXY**DA
sub-base	Internal	6311D-551-PM-**XXY**DA	6321D-551-PM-**XXY**DA	6331D-551-PM-**XXY**DA	6341D-551-PM-**XXY**DA	6351D-551-PM-**XXY**DA
G3/8"	External	6311D-561-PM-**XXY**DA	6321D-561-PM-**XXY**DA	6331D-561-PM-**XXY**DA	6341D-561-PM-**XXY**DA	6351D-561-PM-**XXY**DA
sub-base	Internal	6311D-651-PM-**XXY**DA	6321D-651-PM-**XXY**DA	6331D-651-PM-**XXY**DA	6341D-651-PM-**XXY**DA	6351D-651-PM-**XXY**DA
G1/2"	External	6311D-661-PM-**XXY**DA	6321D-661-PM-**XXY**DA	6331D-661-PM-**XXY**DA	6341D-661-PM-**XXY**DA	6351D-661-PM-**XXY**DA

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

SOLENOID OPERATOR ➤ **XX Y** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
87	24V=/17,1W
59	24V=/2,5W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

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

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

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

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-551.
3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
4. Manifolds for solenoid and remote air operated valves must be ganged separately.

Check the warranty page 277

MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 2600 Nl/min, G1/2" : 3000 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty.		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

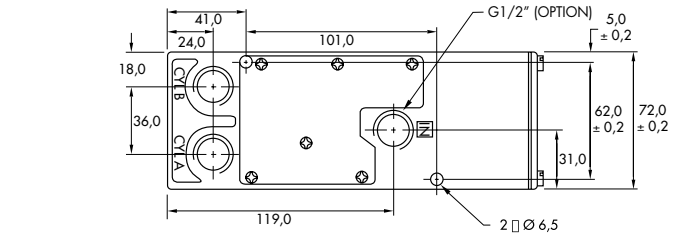
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

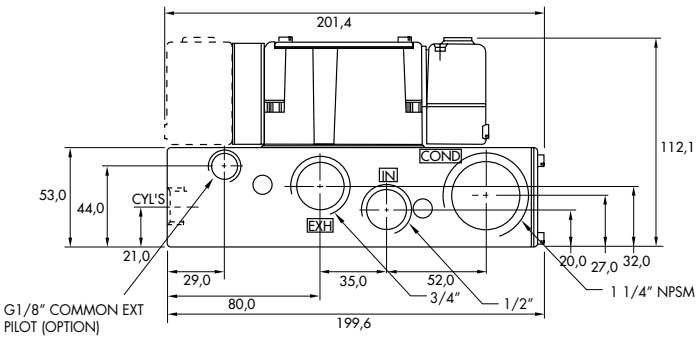
Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





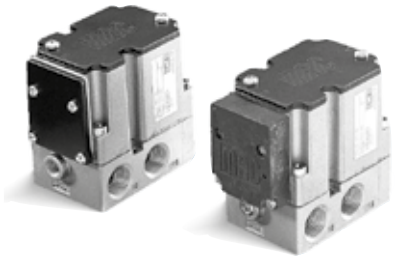
Check the warranty page 277

Series **6300**

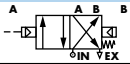
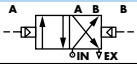
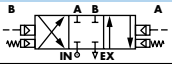
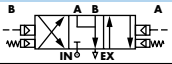
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G1/4" - G3/8" - G1/2"**	**3000 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

OPTIONS

6312D-171-RA

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

Check the warranty page 277

MAC

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

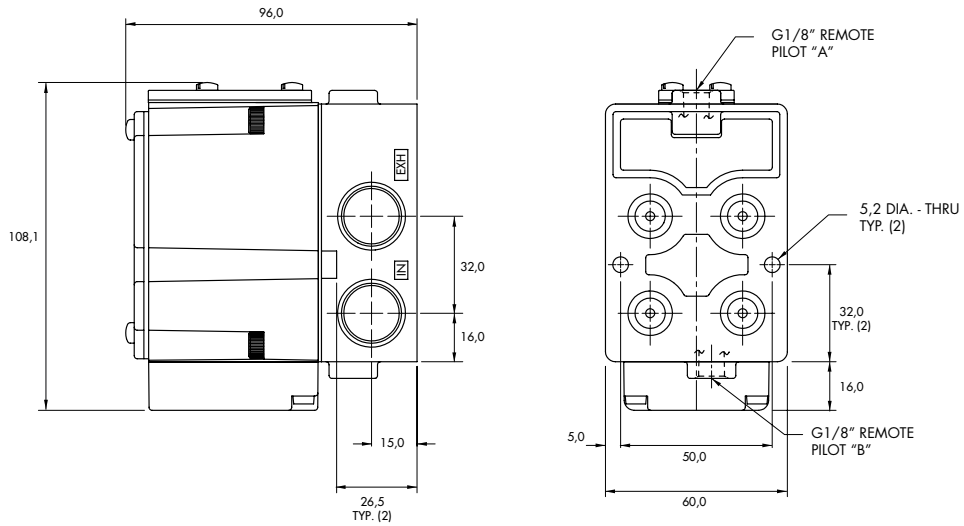
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

Series **6300**

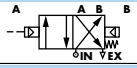
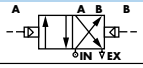
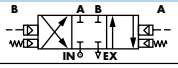
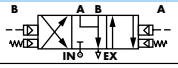
Remote air valves

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G1/4" - G3/8" - G1/2"**	**3000 Nl/min**	sub-base

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

OPTIONS

6312D-471-RA

- For bottom cylinder ports, replace by 4.

Fastening kit : N-63002-01P

Check the warranty page 277

Series 6300

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

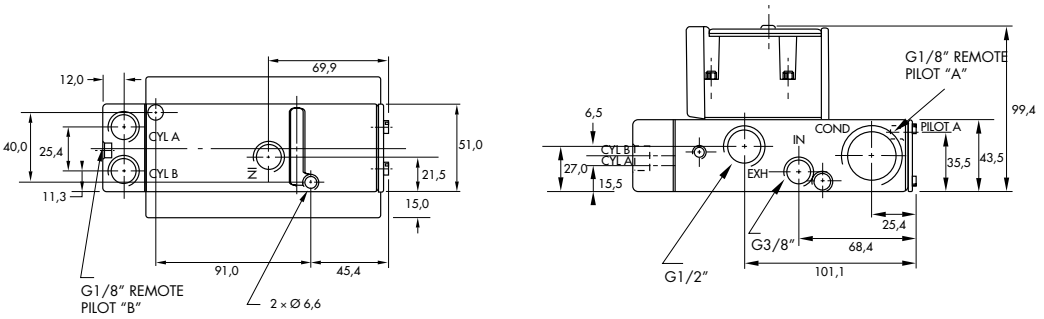
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

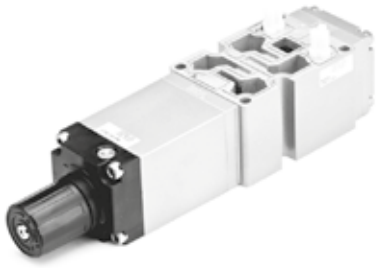
Series **PR63D**

Pressure regulators

Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

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



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port B	Dual pressure * Regulator B end Regulated pressure to port A	Dual pressure * Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-22AA	PR63D-21AA	PR63D-24AA	PR63D-23AA	PR63D-25AA
Glycerine filled gauge on regulator(s)	PR63D-22BA	PR63D-21BA	PR63D-24BA	PR63D-23BA	PR63D-25DA
Glycerine filled gauge opposite to regulator	PR63D-22CA	PR63D-21CA	PR63D-24CA	PR63D-23CA	—
Non-filled gauge on regulator(s)	PR63D-22FA	PR63D-21FA	PR63D-24FA	PR63D-23FA	PR63D-25HA
Non-filled gauge opposite to regulator	PR63D-22GA	PR63D-21GA	PR63D-24GA	PR63D-23GA	—

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

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

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

Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.

***** To be used with dual pressure valves (manifolds only).

PLUG-IN OPTIONS

PR63D-***xxxx***

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

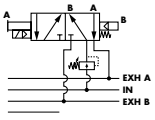
ADJUSTMENT OPTIONS

PR63D-***xxxx***

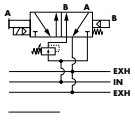
- Replace by A for slotted stem adjustment for single solenoid plug-in.
- Replace by B for slotted stem adjustment for double solenoid plug-in.
- Replace by C for slotted stem adjustment for non plug-in valves.
- Replace by E for slotted stem with locknut for single solenoid plug-in.
- Replace by F for slotted stem with locknut for double solenoid plug-in.
- Replace by G for slotted stem with locknut for non plug-in valves.

Manual adjust

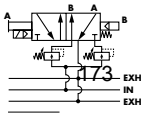
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR63D**

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 (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2400 Nl/min

Spare parts :

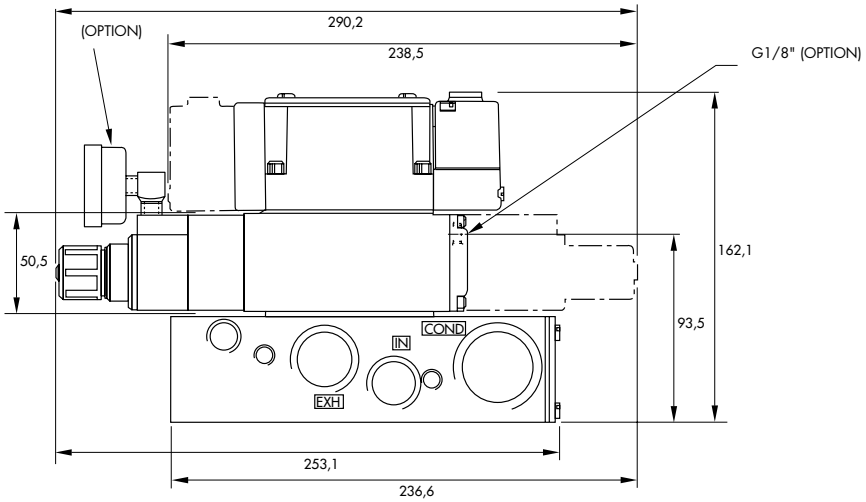
- Pressure regulator (less sandwich block) : PR63D-41AA (KNOB), PR63D-D1AA (SLOTTED STEM), PR63D-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

Regulating range options : PR63D-XXXA

- Replace by B - 0 to 6.7 bar
- Replace by C - 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

Series **PR63D**

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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

HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port B	Dual pressure * Regulator B end Regulated pressure to port A	Dual pressure * Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-2BAA	PR63D-2AAA	PR63D-2DAA	PR63D-2CAA	PR63D-2EAA
Glycerine filled gauge on regulator(s)	PR63D-2BBA	PR63D-2ABA	PR63D-2DBA	PR63D-2CBA	PR63D-2EDA
Glycerine filled gauge opposite to regulator	PR63D-2BCA	PR63D-2ACA	PR63D-2DCA	PR63D-2CCA	—
Non-filled gauge on regulator(s)	PR63D-2BFA	PR63D-2AFA	PR63D-2DFA	PR63D-2CFA	PR63D-2EHA
Non-filled gauge opposite to regulator	PR63D-2BGA	PR63D-2AGA	PR63D-2DGA	PR63D-2CGA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure * Regulator A end Regulated pressure to port B	Dual pressure * Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR63D-3BAA	PR63D-3AAA	PR63D-3DAA	PR63D-3CAA	PR63D-3EAA
Glycerine filled gauge on regulator(s)	PR63D-3BBA	PR63D-3ABA	PR63D-3DBA	PR63D-3CBA	PR63D-3EDA
Glycerine filled gauge opposite to regulator	PR63D-3BCA	PR63D-3ACA	PR63D-3DCA	PR63D-3CCA	—
Non-filled gauge on regulator(s)	PR63D-3BFA	PR63D-3AFA	PR63D-3DFA	PR63D-3CFA	PR63D-3EHA
Non-filled gauge opposite to regulator	PR63D-3BGA	PR63D-3AGA	PR63D-3DGA	PR63D-3CGA	—

* To be used with dual pressure valves (available only on manifolds).

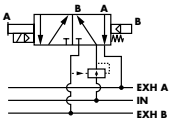
PLUG-IN OPTIONS

PR63D-*xxxx*

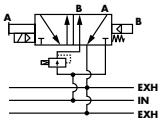
- Replace by 1 for single solenoid plug-in.

Air adjust

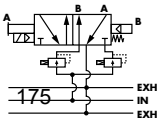
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR63D**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

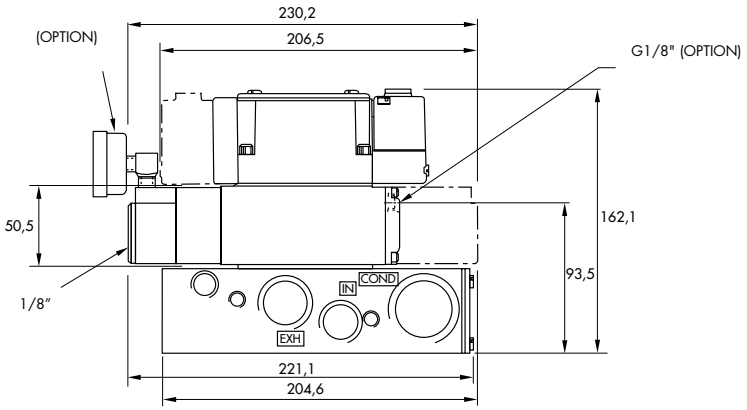
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	2400 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PR63D-4AAA.
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)



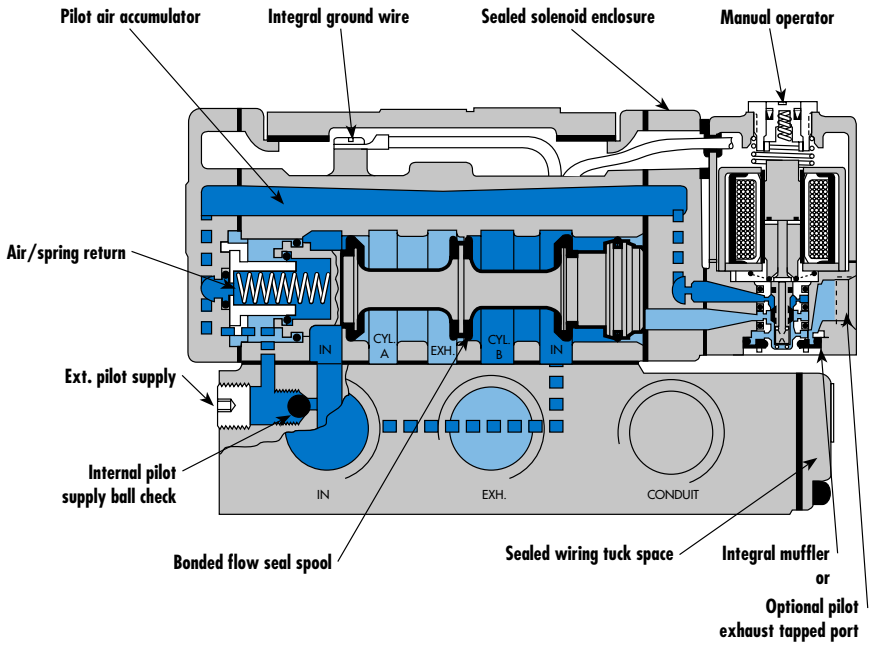
Check the warranty page 277

Individual mounting

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

Manifold mounting

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



SERIES FEATURES

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

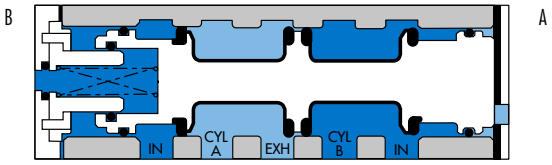
MAC

Series 6500

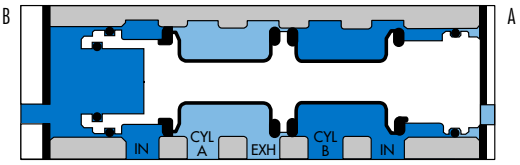
100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

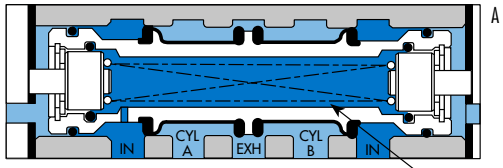
SPOOL CONFIGURATIONS



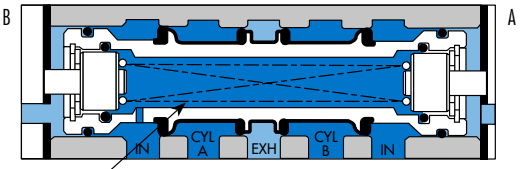
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN

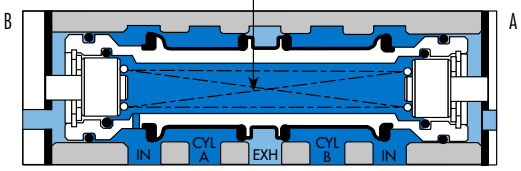


3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING



3 POS. PRESSURE CENTER
CENTER POSITION SHOWN

VALVE CONFIGURATIONS AVAILABLE

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

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

REMOTE AIR PILOT OPERATED VALVES

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

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

ALL MODELS AVAILABLE WITH SANDWICH TYPE REGULATORS

Check the warranty page 277

MAC

Series 6500

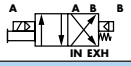
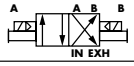
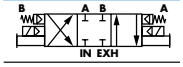
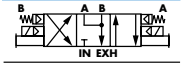
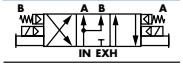
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6512B-XXX-PM-*XXYZZ*

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

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

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

Check the warranty page 277

MAC

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

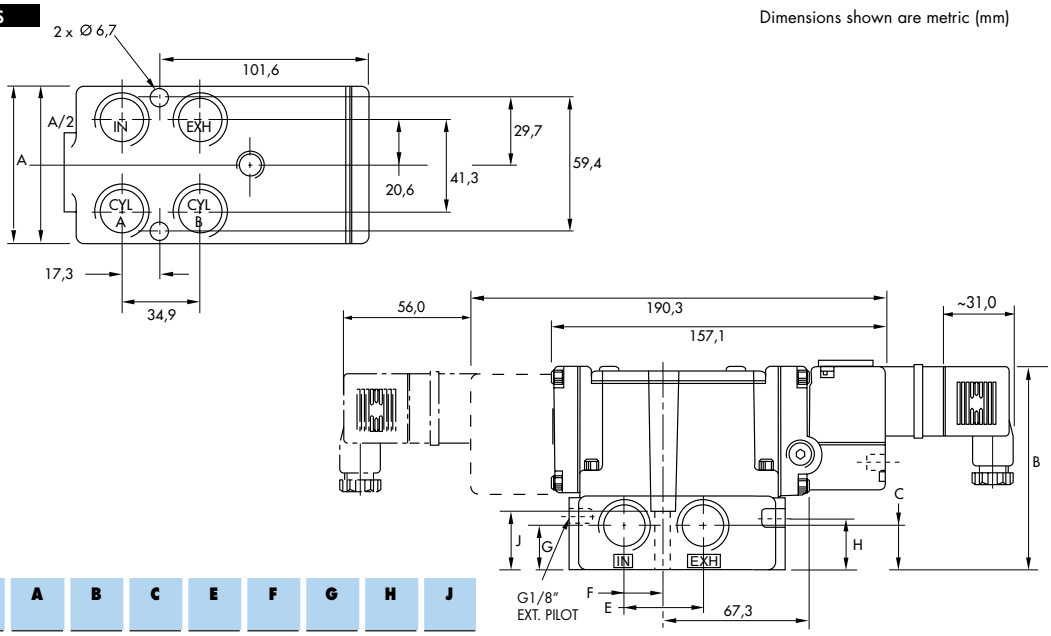
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



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

Check the warranty page 277

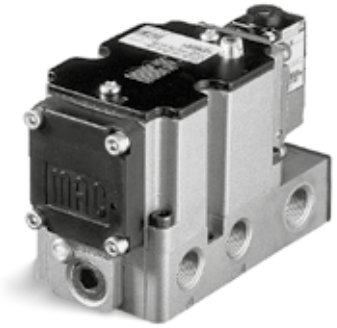
MAC

Series 6500

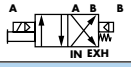
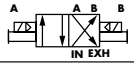
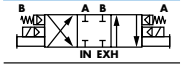
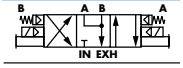
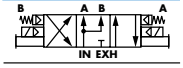
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6511B-000-PM-**XXY**DA	6521B-000-PM-**XXY**DA	6531B-000-PM-**XXY**DA	6541B-000-PM-**XXY**DA	6551B-000-PM-**XXY**DA
sub-base	Internal	6511B-151-PM-**XXY**DA	6521B-151-PM-**XXY**DA	6531B-151-PM-**XXY**DA	6541B-151-PM-**XXY**DA	6551B-151-PM-**XXY**DA
G3/8"	External	6511B-161-PM-**XXY**DA	6521B-161-PM-**XXY**DA	6531B-161-PM-**XXY**DA	6541B-161-PM-**XXY**DA	6551B-161-PM-**XXY**DA
sub-base	Internal	6511B-251-PM-**XXY**DA	6521B-251-PM-**XXY**DA	6531B-251-PM-**XXY**DA	6541B-251-PM-**XXY**DA	6551B-251-PM-**XXY**DA
G1/2"	External	6511B-261-PM-**XXY**DA	6521B-261-PM-**XXY**DA	6531B-261-PM-**XXY**DA	6541B-261-PM-**XXY**DA	6551B-261-PM-**XXY**DA
sub-base	Internal	6511B-351-PM-**XXY**DA	6521B-351-PM-**XXY**DA	6531B-351-PM-**XXY**DA	6541B-351-PM-**XXY**DA	6551B-351-PM-**XXY**DA
G3/4"	External	6511B-361-PM-**XXY**DA	6521B-361-PM-**XXY**DA	6531B-361-PM-**XXY**DA	6541B-361-PM-**XXY**DA	6551B-361-PM-**XXY**DA

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

SOLENOID OPERATOR ➤ **XX Y** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

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

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

MODIFICATIONS

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

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

Check the warranty page 277

MAC

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

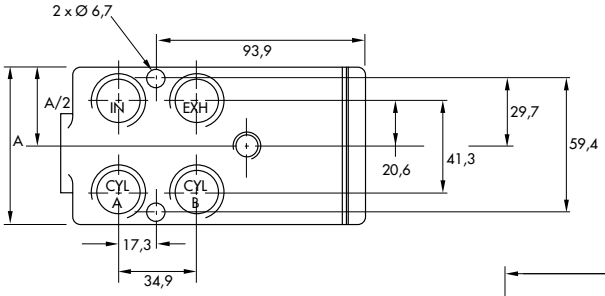
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201.

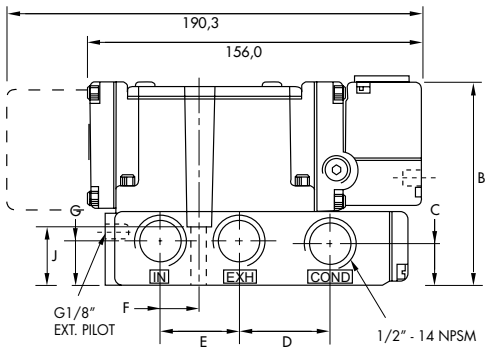
Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





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

Check the warranty page 277

MAC

Series 6500

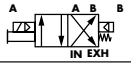
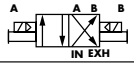
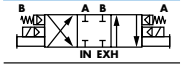
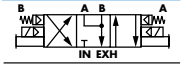
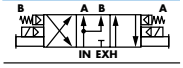
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connectorwith light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6512B-XXX-PM-*XXYZZ*

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

MODIFICATIONS

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

Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
2. Bottom ports : Refer to modification table.
3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-471.

Check the warranty page 277

MAC

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

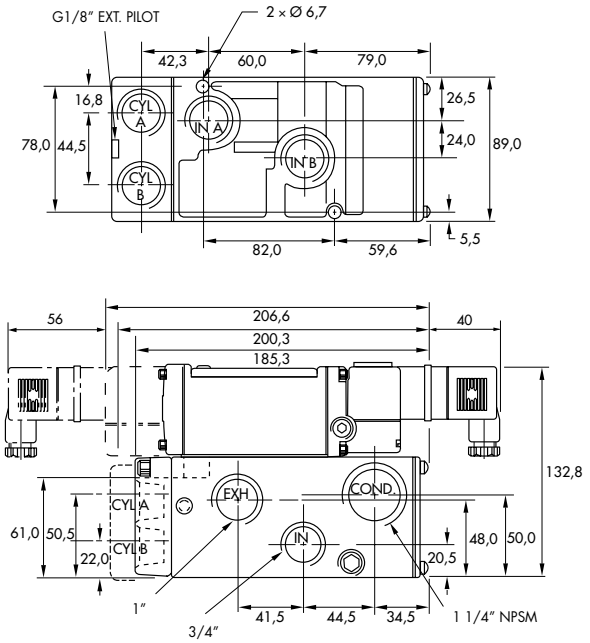
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

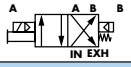
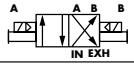
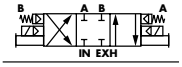
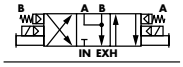
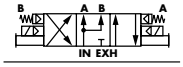
Series 6500

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6511B-000-PM-*XXY*DA	6521B-000-PM-*XXY*DA	6531B-000-PM-*XXY*DA	6541B-000-PM-*XXY*DA	6551B-000-PM-*XXY*DA
sub-base	Internal	6511B-451-PM-*XXY*DA	6521B-451-PM-*XXY*DA	6531B-451-PM-*XXY*DA	6541B-451-PM-*XXY*DA	6551B-451-PM-*XXY*DA
G3/8"	External	6511B-461-PM-*XXY*DA	6521B-461-PM-*XXY*DA	6531B-461-PM-*XXY*DA	6541B-461-PM-*XXY*DA	6551B-461-PM-*XXY*DA
sub-base	Internal	6511B-551-PM-*XXY*DA	6521B-551-PM-*XXY*DA	6531B-551-PM-*XXY*DA	6541B-551-PM-*XXY*DA	6551B-551-PM-*XXY*DA
G1/2"	External	6511B-561-PM-*XXY*DA	6521B-561-PM-*XXY*DA	6531B-561-PM-*XXY*DA	6541B-561-PM-*XXY*DA	6551B-561-PM-*XXY*DA
sub-base	Internal	6511B-651-PM-*XXY*DA	6521B-651-PM-*XXY*DA	6531B-651-PM-*XXY*DA	6541B-651-PM-*XXY*DA	6551B-651-PM-*XXY*DA
G3/4"	External	6511B-661-PM-*XXY*DA	6521B-661-PM-*XXY*DA	6531B-661-PM-*XXY*DA	6541B-661-PM-*XXY*DA	6551B-661-PM-*XXY*DA

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

SOLENOID OPERATOR ➤ ***XX Y*** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

6511B-XXX-PM-*XXY*DA

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

MODIFICATIONS

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

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
2. Bottom ports : Refer to modification table.
3. To order manifolds without the valve, choose the manifold from the above table, then add 6500B as a prefix. Example 6500B-451.

Check the warranty page 277

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 12 ms	De-energize : 12 ms
	50Hz/6 W	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

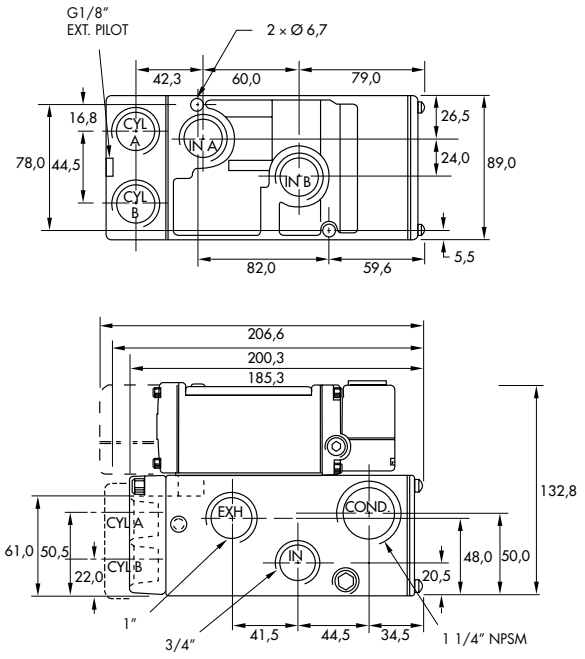
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

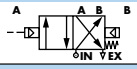
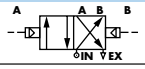
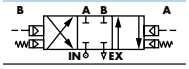
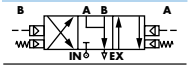
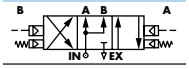
Series **6500**

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
Sub-base G3/8"	6512B-171-RA	6522B-181-RA	6532B-181-RA	6542B-181-RA	6552B-181-RA
Sub-base G1/2"	6512B-271-RA	6522B-281-RA	6532B-281-RA	6542B-281-RA	6552B-281-RA
Sub-base G3/4"	6512B-371-RA	6522B-381-RA	6532B-381-RA	6542B-381-RA	6552B-381-RA

OPTIONS

6512B-171-RA

Dual pressure valves : replace by 4. (excluding G3/4" base)

Check the warranty page 277

MAC

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

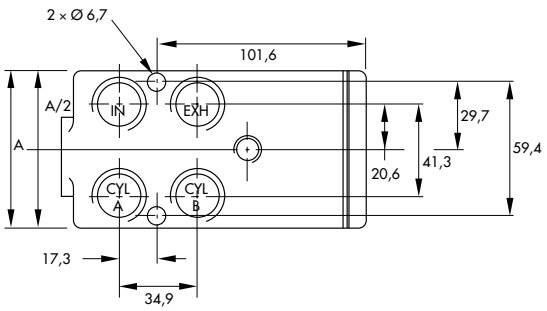
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min

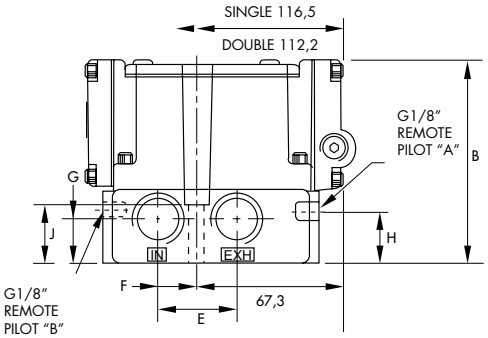
Spare parts : • Remote air operator : R-00008. • Seal between valve and base : 16246. • Mounting screw valve to base (x4) : 32201.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





PORT SIZE	A	B	E	F	G	H	J
G3/8" & G1/2"	69.6	97.4	36.0	17.9	19.0	23.6	25.4
G3/4"	94.5	109.3	40.1	19.2	20.8	35.9	36.6

Check the warranty page 277

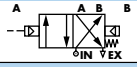
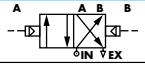
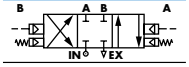
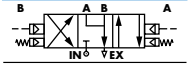
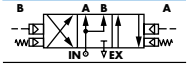
Series **6500**

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/8" - G1/2" - G3/4"**	**5100 Nl/min**	sub-base

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6512B-000-RA	6522B-000-RA	6532B-000-RA	6542B-000-RA	6552B-000-RA
Sub-base G3/8"	6512B-471-RA	6522B-481-RA	6532B-481-RA	6542B-481-RA	6552B-481-RA
Sub-base G1/2"	6512B-571-RA	6522B-581-RA	6532B-581-RA	6542B-581-RA	6552B-581-RA
Sub-base G3/4"	6512B-671-RA	6522B-681-RA	6532B-681-RA	6542B-681-RA	6552B-681-RA

OPTIONS

6512B-471-RA

For dual pressure valves, replace by 4.

Fastening kit : N-65002-01P.

Check the warranty page 277

MAC

Series 6500

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

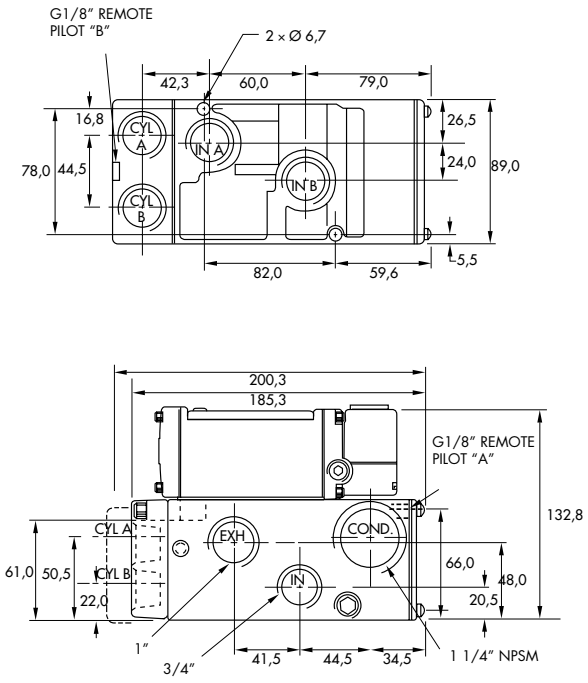
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 4500 Nl/min, G1/2" : 5000 Nl/min, G3/4" : 5100 Nl/min

Spare parts : • Remote air operator : R-00008. • Seal between valve and base : 16246.
• Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

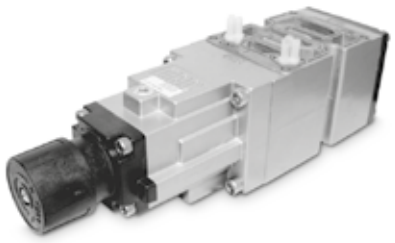
Series **PR65C**

Pressure regulators

Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

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



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-22AA	PR65C-21AA	PR65C-24AA	PR65C-23AA	PR65C-25AA
Glycerine filled gauge on regulator(s)	PR65C-22BA	PR65C-21BA	PR65C-24BA	PR65C-23BA	PR65C-25DA
Glycerine filled gauge opposite to regulator	PR65C-22CA	PR65C-21CA	PR65C-24CA	PR65C-23CA	—
Non-filled gauge on regulator(s)	PR65C-22FA	PR65C-21FA	PR65C-24FA	PR65C-23FA	PR65C-25HA
Non-filled gauge opposite to regulator	PR65C-22GA	PR65C-21GA	PR65C-24GA	PR65C-23GA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-32AA	PR65C-31AA	PR65C-34AA	PR65C-33AA	PR65C-35AA
Glycerine filled gauge on regulator(s)	PR65C-32BA	PR65C-31BA	PR65C-34BA	PR65C-33BA	PR65C-35DA
Glycerine filled gauge opposite to regulator	PR65C-32CA	PR65C-31CA	PR65C-34CA	PR65C-33CA	—
Non-filled gauge on regulator(s)	PR65C-32FA	PR65C-31FA	PR65C-34FA	PR65C-33FA	PR65C-35HA
Non-filled gauge opposite to regulator	PR65C-32GA	PR65C-31GA	PR65C-34GA	PR65C-33GA	—

Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.

PLUG-IN OPTIONS

PR65C-*xxxx*

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

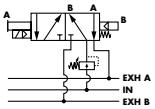
ADJUSTMENT OPTIONS

PR65C-*xxxx*

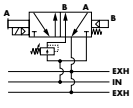
- Replace by A for slotted stem adjustment for single solenoid plug-in.
- Replace by B for slotted stem adjustment for double solenoid plug-in.
- Replace by C for slotted stem adjustment for non plug-in valves.
- Replace by E for slotted stem with locknut for single solenoid plug-in.
- Replace by F for slotted stem with locknut for double solenoid plug-in.
- Replace by G for slotted stem with locknut for non plug-in valves.

Manual adjust

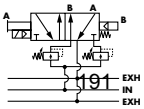
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR65C**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

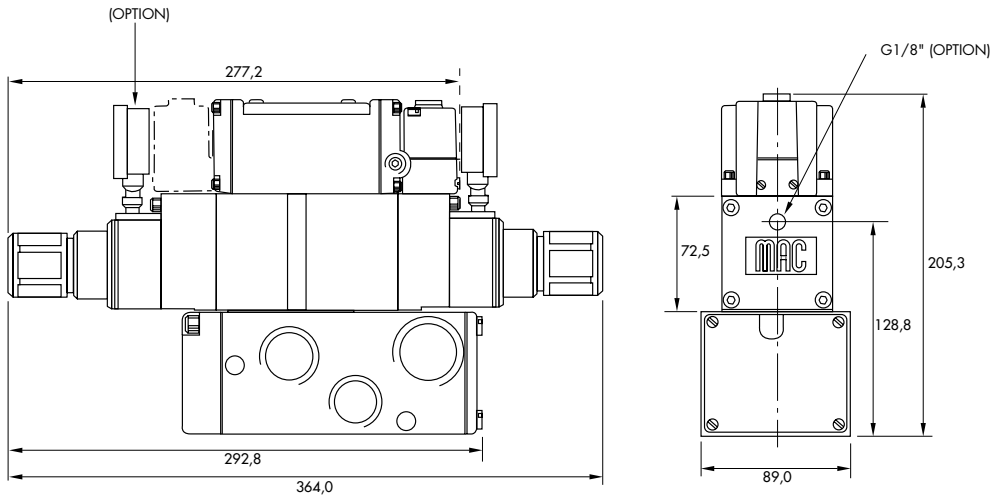
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	4000 Nl/min

Spare parts :
- Pressure regulator (less sandwich block) : PR65C-41AA (KNOB), PR65C-D1AA (SLOTTED STEM), PR65C-H1AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

Regulating range options : PR65C-XXXA
- Replace by B - 0 to 6.7 bar
- Replace by C - 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



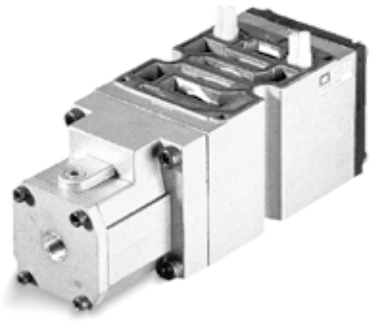
Check the warranty page 277

Series **PR65C**

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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



HOW TO ORDER

REGULATORS FOR "PLUG-IN" VALVES

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-2BAA	PR65C-2AAA	PR65C-2DAA	PR65C-2CAA	PR65C-2EAA
Glycerine filled gauge on regulator(s)	PR65C-2BBA	PR65C-2ABA	PR65C-2DBA	PR65C-2CBA	PR65C-2EDA
Glycerine filled gauge opposite to regulator	PR65C-2BCA	PR65C-2ACA	PR65C-2DCA	PR65C-2CCA	—
Non-filled gauge on regulator(s)	PR65C-2BFA	PR65C-2AFA	PR65C-2DFA	PR65C-2CFA	PR65C-2EHA
Non-filled gauge opposite to regulator	PR65C-2BGA	PR65C-2AGA	PR65C-2DGA	PR65C-2CGA	—

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

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

Gauges	Single pressure Regulator A end Same regulated pressure to ports A and B	Single pressure Regulator B end Same regulated pressure to ports A and B	Dual pressure Regulator A end Regulated pressure to port B	Dual pressure Regulator B end Regulated pressure to port A	Dual pressure Dual regulator Two regulated pressures to ports A and B
No gauge	PR65C-3BAA	PR65C-3AAA	PR65C-3DAA	PR65C-3CAA	PR65C-3EAA
Glycerine filled gauge on regulator(s)	PR65C-3BBA	PR65C-3ABA	PR65C-3DBA	PR65C-3CBA	PR65C-3EDA
Glycerine filled gauge opposite to regulator	PR65C-3BCA	PR65C-3ACA	PR65C-3DCA	PR65C-3CCA	—
Non-filled gauge on regulator(s)	PR65C-3BFA	PR65C-3AFA	PR65C-3DFA	PR65C-3CFA	PR65C-3EHA
Non-filled gauge opposite to regulator	PR65C-3BGA	PR65C-3AGA	PR65C-3DGA	PR65C-3CGA	—

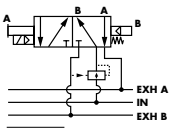
PLUG-IN OPTIONS

PR65C-*xxxx*

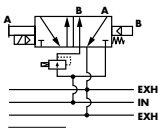
- Replace by 1 for single solenoid plug-in.

Air adjust

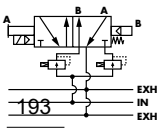
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PR65C**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

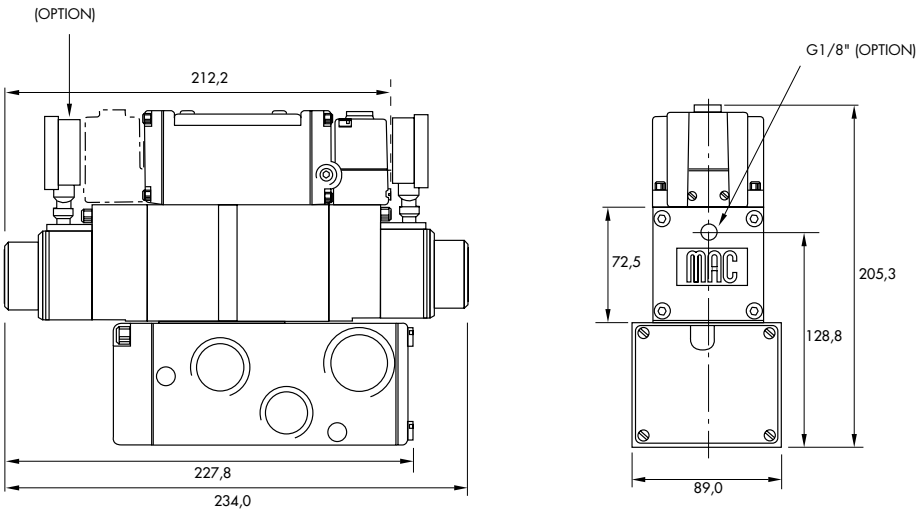
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	4000 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PR65C-4AAA.
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)



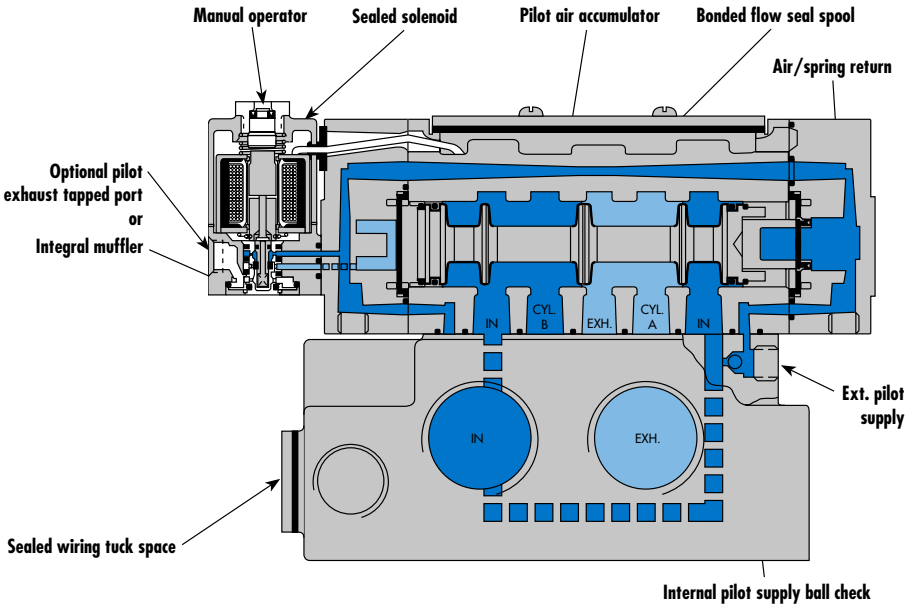
Check the warranty page 277

Individual mounting

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

Manifold mounting

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



SERIES FEATURES

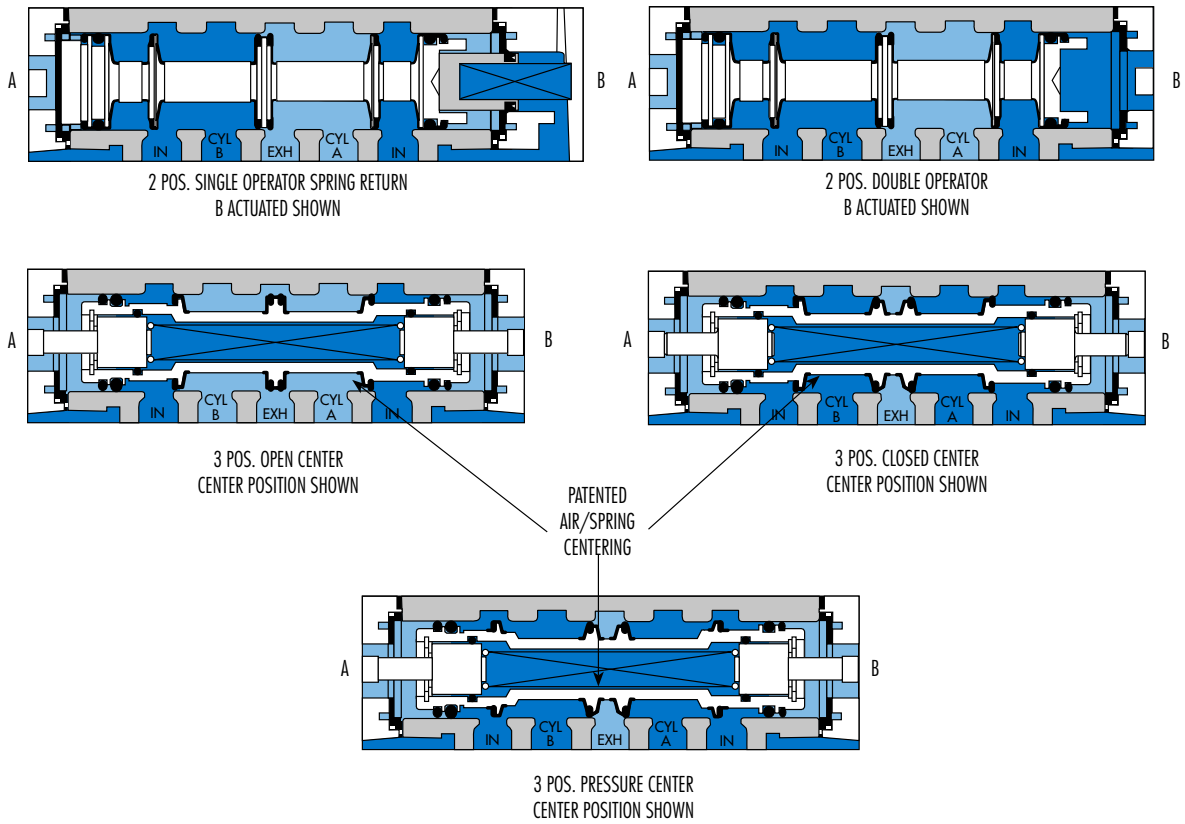
- The patented MACSOLENOID with its non-burn out feature on AC service.
- A large checked accumulator for consistent shifting on single and double solenoid models.
- A plug-in design that provides for internal or external pilot with or without lights and all electrical and air plumbing in the base.
-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

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

SPOOL CONFIGURATIONS



VALVE CONFIGURATIONS AVAILABLE

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

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

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

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

Check the warranty page 277

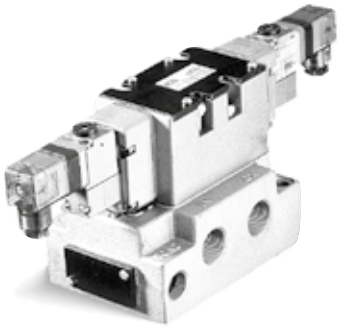
MAC

Series 6600

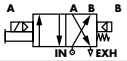
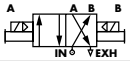
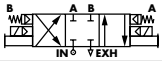
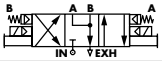
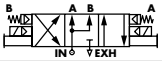
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/4" - G1"**	**9600 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ➤ **XX Y ZZ** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connectorwith light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6612A-XXX-PM-XXYZZ

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

MODIFICATIONS

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

TO ORDER - Add the appropriate modification number after the valve number;
EXAMPLE : 6612A-271-PM-111JA **MOD 0002**

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

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

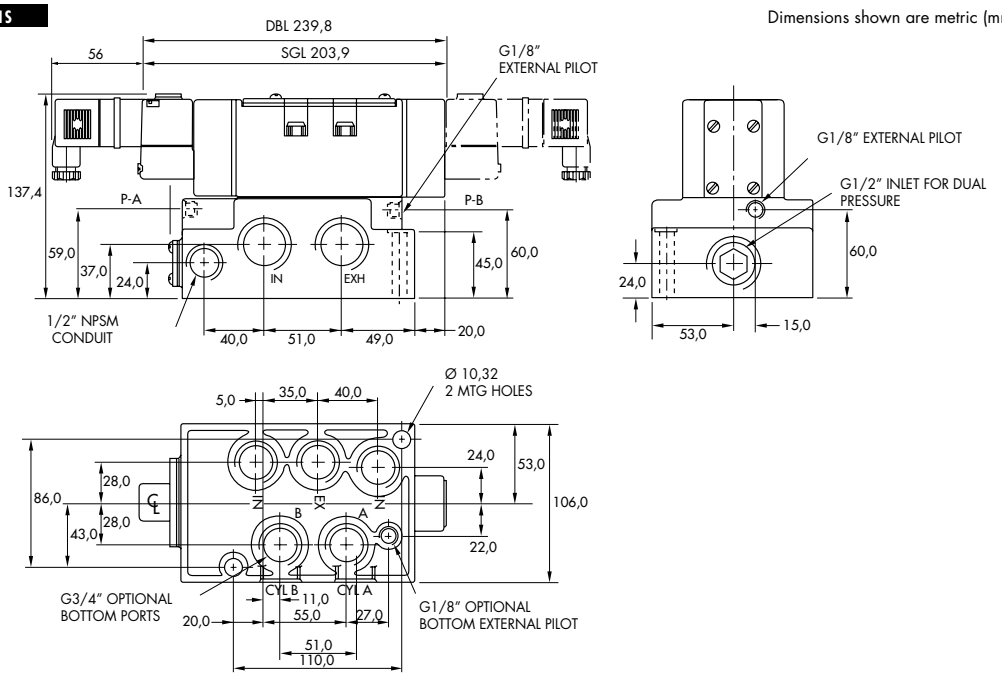
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

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

Options :
- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

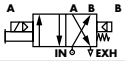
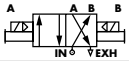
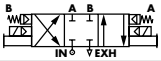
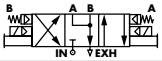
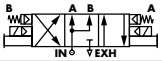
Series 6600

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/4" - G1"**	**9600 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6611A-000-PM-*XXY*DA	6621A-000-PM-*XXY*DA	6631A-000-PM-*XXY*DA	6641A-000-PM-*XXY*DA	6651A-000-PM-*XXY*DA
sub-base	Internal	6611A-251-PM-*XXY*DA	6621A-251-PM-*XXY*DA	6631A-251-PM-*XXY*DA	6641A-251-PM-*XXY*DA	6651A-251-PM-*XXY*DA
G3/4"	External	6611A-261-PM-*XXY*DA	6621A-261-PM-*XXY*DA	6631A-261-PM-*XXY*DA	6641A-261-PM-*XXY*DA	6651A-261-PM-*XXY*DA
sub-base	Internal	6611A-351-PM-*XXY*DA	6621A-351-PM-*XXY*DA	6631A-351-PM-*XXY*DA	6641A-351-PM-*XXY*DA	6651A-351-PM-*XXY*DA
G1"	External	6611A-361-PM-*XXY*DA	6621A-361-PM-*XXY*DA	6631A-361-PM-*XXY*DA	6641A-361-PM-*XXY*DA	6651A-361-PM-*XXY*DA

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

SOLENOID OPERATOR ➤ ***XX Y*** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

6611A-XXX-PM-*XXY*DA

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

MODIFICATIONS

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

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

TO ORDER - Add the appropriate modification number after the valve number;
EXAMPLE : 6611A-251-PM-111DA **MOD 0002**

Consult "Precautions" page 312 before use, installation or service of MAC Valves.

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

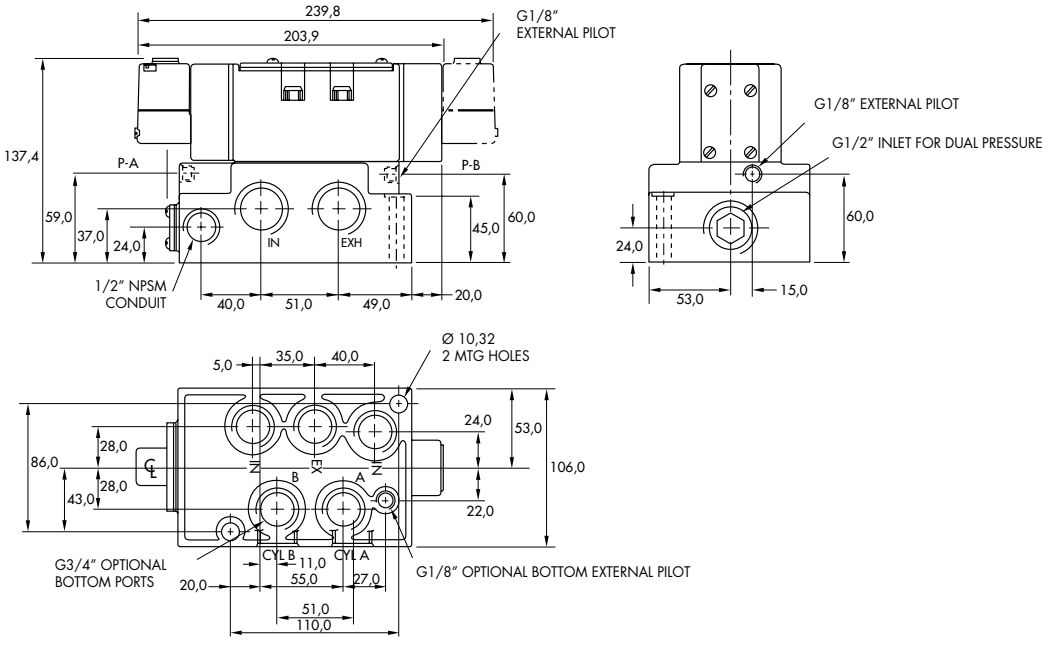
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

Series 6600

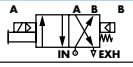
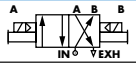
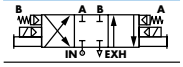
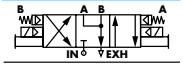
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/4" - G1" - G1 1/4"**	**9600 Nl/min**	sub-base non "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ➤ **XX Y ZZ** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connectorwith light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

OPTIONS

6612A-XXX-PM-XXYDA

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

MODIFICATIONS

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

TO ORDER - Add the appropriate modification number after the valve number;
EXAMPLE : 6612A-471-PM-111JA **MOD 0364**

Note : 1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
2. Bottom ports : Refer to modification table.
3. To order manifolds without the valve, choose the manifold from the above table, then add 6600A as a prefix. Example 6600A-471.
4. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
5. 2 position and 3 position valve bodies are not interchangeable.

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min, G1 1/4" : 9600 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

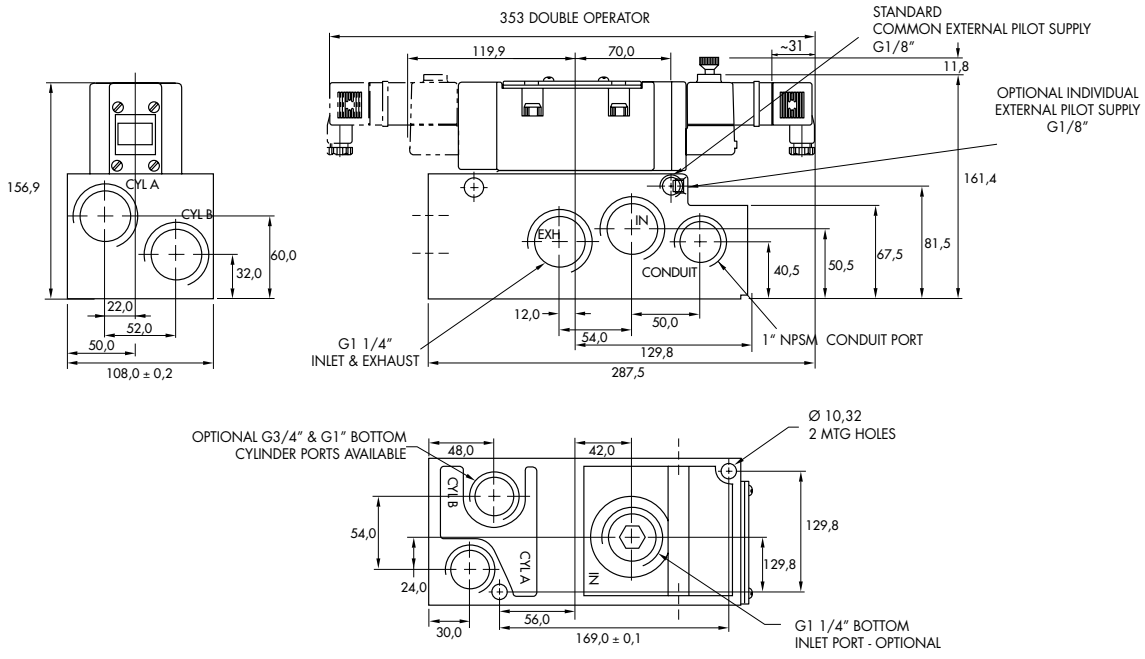
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789.• Fastening kit : N-66002-01.
- Inlet & exhaust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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

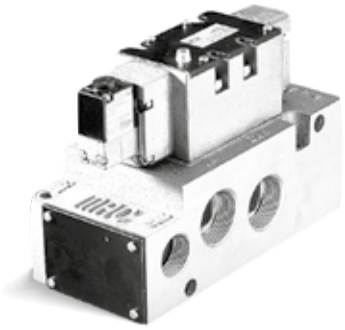
MAC

Series 6600

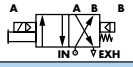
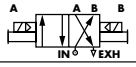
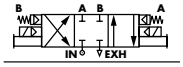
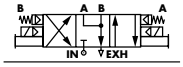
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/4" - G1" - G1 1/4"**	**9600 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6611A-000-PM-*XX*Y*DA*	6621A-000-PM-*XX*Y*DA*	6631A-000-PM-*XX*Y*DA*	6641A-000-PM-*XX*Y*DA*	6651A-000-PM-*XX*Y*DA*
sub-base	Internal	6611A-451-PM-*XX*Y*DA*	6621A-451-PM-*XX*Y*DA*	6631A-451-PM-*XX*Y*DA*	6641A-451-PM-*XX*Y*DA*	6651A-451-PM-*XX*Y*DA*
G3/4"	External	6611A-461-PM-*XX*Y*DA*	6621A-461-PM-*XX*Y*DA*	6631A-461-PM-*XX*Y*DA*	6641A-461-PM-*XX*Y*DA*	6651A-461-PM-*XX*Y*DA*
sub-base	Internal	6611A-551-PM-*XX*Y*DA*	6621A-551-PM-*XX*Y*DA*	6631A-551-PM-*XX*Y*DA*	6641A-551-PM-*XX*Y*DA*	6651A-551-PM-*XX*Y*DA*
G1"	External	6611A-561-PM-*XX*Y*DA*	6621A-561-PM-*XX*Y*DA*	6631A-561-PM-*XX*Y*DA*	6641A-561-PM-*XX*Y*DA*	6651A-561-PM-*XX*Y*DA*
sub-base	Internal	6611A-651-PM-*XX*Y*DA*	6621A-651-PM-*XX*Y*DA*	6631A-651-PM-*XX*Y*DA*	6641A-651-PM-*XX*Y*DA*	6651A-651-PM-*XX*Y*DA*
G1 1/4"	External	6611A-661-PM-*XX*Y*DA*	6621A-661-PM-*XX*Y*DA*	6631A-661-PM-*XX*Y*DA*	6641A-661-PM-*XX*Y*DA*	6651A-661-PM-*XX*Y*DA*

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

SOLENOID OPERATOR ➤ ***XX Y*** DA *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

* Other options available, see page 305.

OPTIONS

6611A-XXX-PM-*XX*Y*DA*

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

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

MODIFICATIONS

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

TO ORDER - Add the appropriate modification number after the valve number;
EXAMPLE : 6611A-451-PM-111DA **MOD 0364**

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min, G1 1/4" : 9600 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

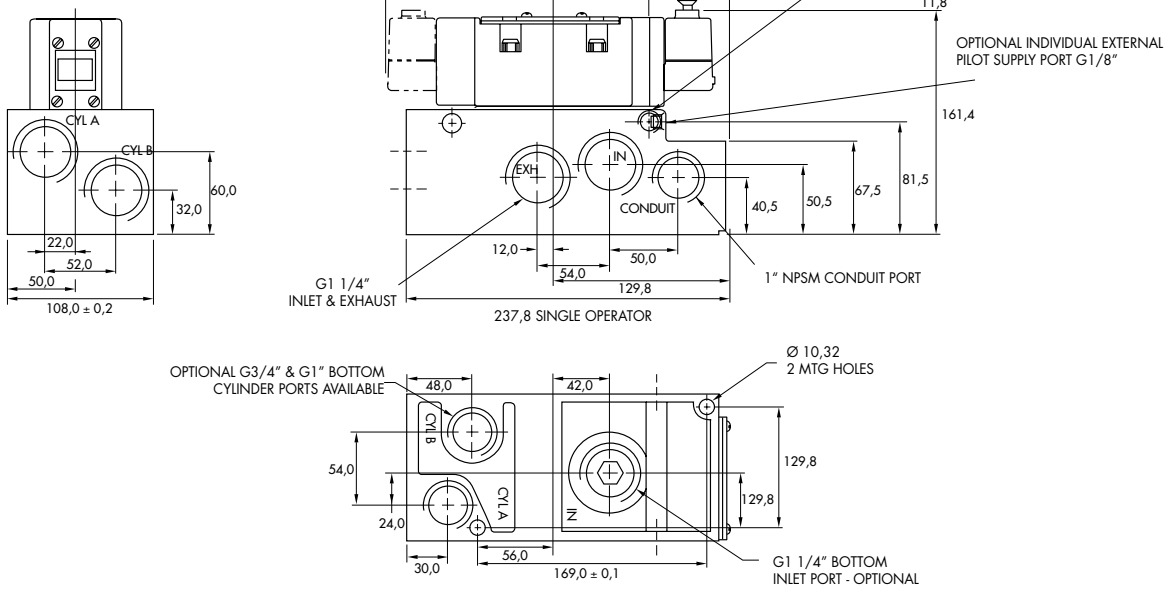
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789. • Fastening kit : N-66002-01.
- Inlet & exhaust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

Options :

- NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



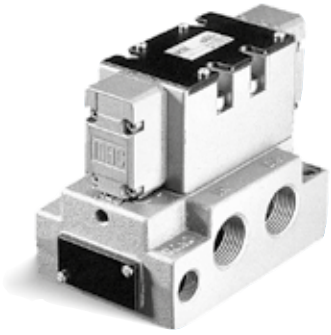
Check the warranty page 277

Series **6600**

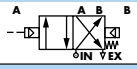
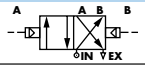
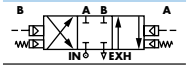
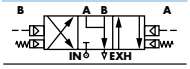
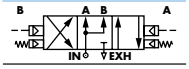
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/4" - G1"**	**9600 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6612A-000-RA	6622A-000-RA	6632A-000-RA	6642A-000-RA	6652A-000-RA
Sub-base G3/4"	6612A-271-RA	6622A-281-RA	6632A-281-RA	6642A-281-RA	6652A-281-RA
Sub-base G1"	6612A-371-RA	6622A-381-RA	6632A-381-RA	6642A-381-RA	6652A-381-RA

OPTIONS

6612A-271-RA

Dual pressure valves : replace by 4.

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

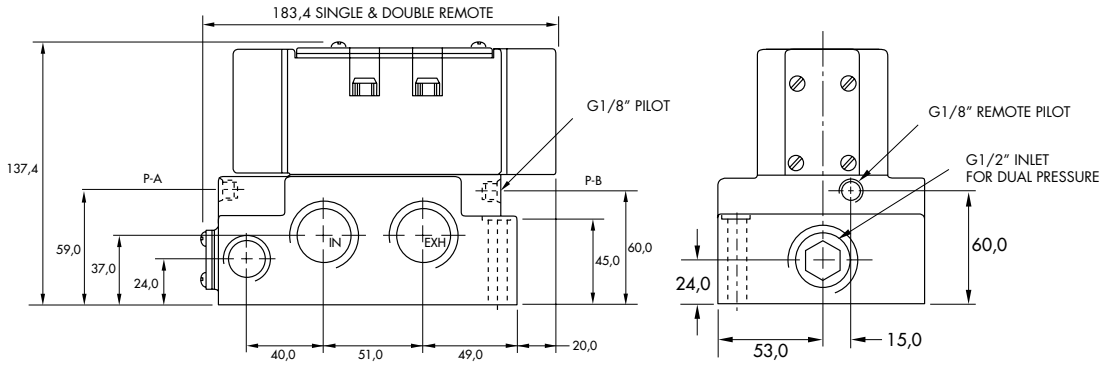
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



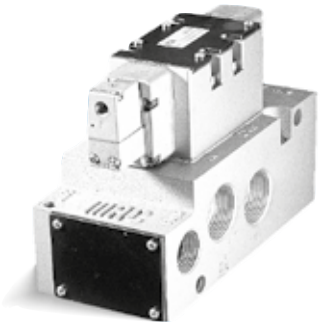
Check the warranty page 277

Series **6600**

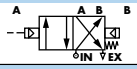
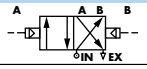
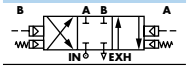
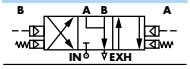
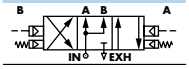
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	**G3/4" - G1"**	**9600 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
					
Valve less base	6612A-000-PM-MO114	6622A-000-PM-MO114	6632A-000-PM-MO114	6642A-000-PM-MO114	6652A-000-PM-MO114
Sub-base G3/4"	6612A-471-PM-MO114	6622A-481-PM-MO114	6632A-481-PM-MO114	6642A-481-PM-MO114	6652A-481-PM-MO114
Sub-base G1"	6612A-571-PM-MO114	6622A-581-PM-MO114	6632A-581-PM-MO114	6642A-581-PM-MO114	6652A-581-PM-MO114

OPTIONS

6612A-XXX-PM-MO114

For dual pressure valves, replace by 4.

Fastening kit : N-66002-01P.

Check the warranty page 277

MAC

Series 6600

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

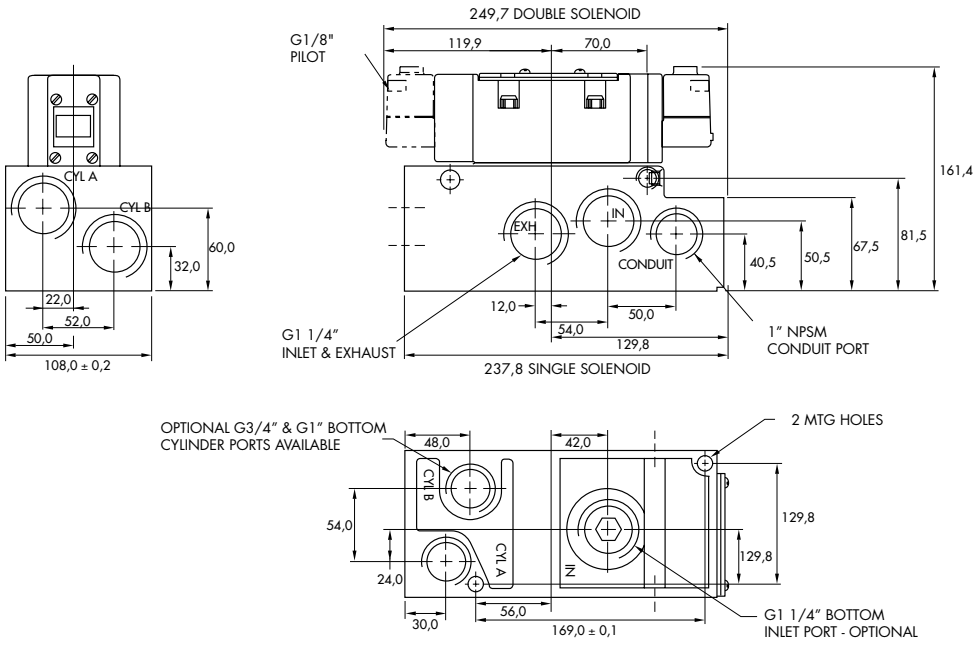
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 9000 Nl/min, G1" : 9600 Nl/min

Spare parts : • Remote air operator : R-A3004. • Pressure seal between valve and base : 16436. • Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789. • Remote air pilot : PME-MO114.

Options : • NPTF threads.

DIMENSIONS

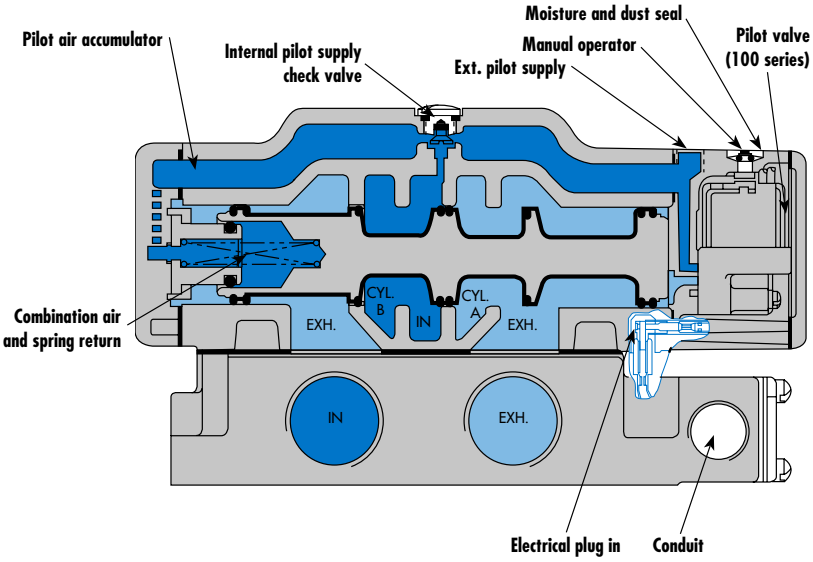
Dimensions shown are metric (mm)



Check the warranty page 277

Individual mounting

sub-base "plug-in"



SERIES FEATURES

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

Check the warranty page 277

Series **1300**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

SOLENOID PILOT

The solenoid pilot utilized on the 1300 Series is the extremely fast and reliable, spring biased MAC 100 Series three-way manifold valve which features a high flow balanced poppet. The patented spring biased floating pole piece MACSOLENOID of the 100 Series practically eliminates the two most common causes of solenoid valve failures: coil burnout on AC service and failure to shift. The versatility of the 100 Series permits either internal or external pilot supply. The solenoid housing incorporates a G1/8" pilot exhaust connection which can be either muffled or piped away and the extrenal pilot supply connection.

MAIN VALVE

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

ACCUMULATOR

A large accumulator housed in the main valve body supplies both pilots on double solenoid valves as well as the air assisted spring return on single solenoid pilot or single remote air pilot operated valves. Internally piloted, the accumulator is protected from inlet pressure fluctuations in the main valve by a check valve. The check valve is designed to bleed off the accumulator when the main supply pressure is removed. For external pilot supply operations, the check valve is reversed, blocking the internal pilot supply to the accumulator. The accumulator is then supplied through the external supply connection.

DIFFERENTIAL RETURN

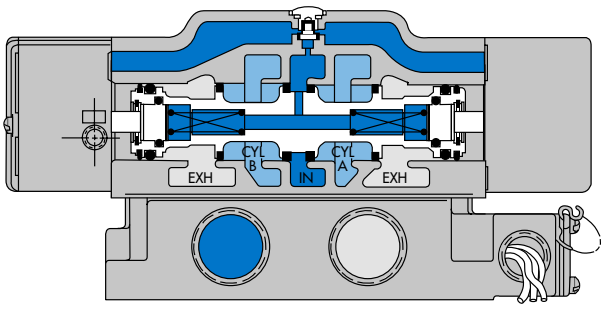
Single solenoid pilot or single air pilot operated models contain a combination spring and air assisted differential return. Supplied from the accumulator it balances the shifting forces for consistent operation and positive spool return.

BASES

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

3-POSITION VALVES

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



3-POSITION DOUBLE
SOLENOID CLOSED CENTER

Check the warranty page 277

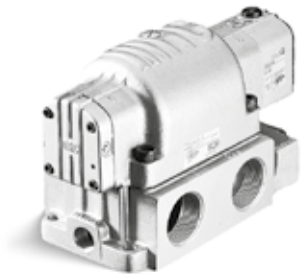
MAC

Series **1300**

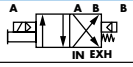
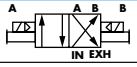
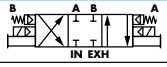
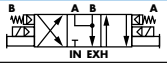
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/4" - G1" - G1 1/4" - G1 1/2"**	**15900 Nl/min**	sub-base "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y*** D- ***X X****

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
87	24V=/17,1W
59	24V=/2,5W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

X	Pilot air
3	Internal
4	External

X	Indicator light
5	With light in base

* Other options available, see page 305.

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

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

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

Check the warranty page 277

MAC

Series **1300**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

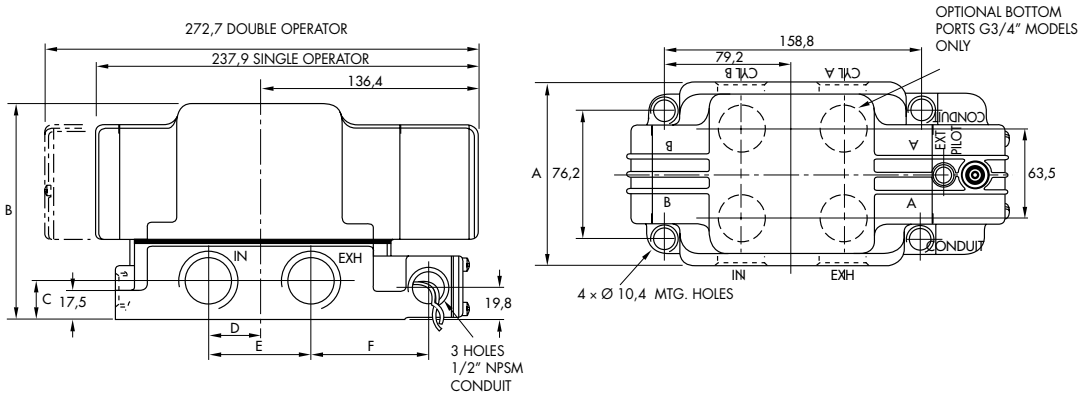
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 11500 Nl/min, G1" : 13700 Nl/min, G1 1/4" : 15400 Nl/min, G1 1/2" : 15900 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 20 ms	De-energize : 28 ms
	50Hz/6 W	Energize : 17-23 ms	De-energize : 29-35 ms

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

Options : • NPTF threads. • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



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

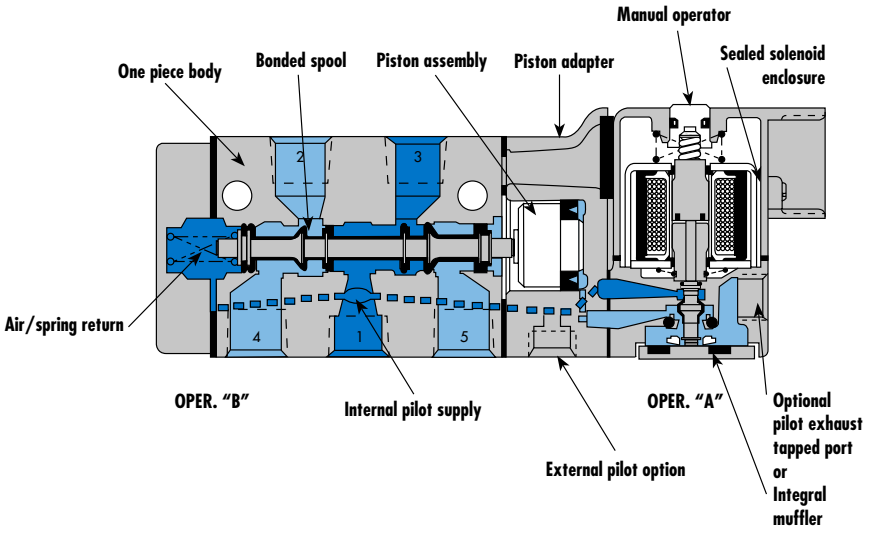
Check the warranty page 277

Individual mounting

inline

Manifold mounting

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



SERIES FEATURES

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

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

SPECIAL APPLICATIONS :

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

EXTERNAL PILOT APPLICATIONS :

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

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

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

DUAL PRESSURE (TWO INLET) APPLICATIONS :

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

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

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

MULTIPLE PRESSURES TO A STACK :

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

VACUUM APPLICATIONS :

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

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

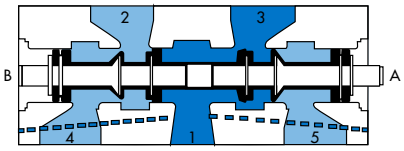
For dual pressure, single exhaust type valves, vacuum should be connected to port #1 (Inlet) and ports #4 & #5 (Exhausts) to atmosphere.

SELECTOR APPLICATIONS :

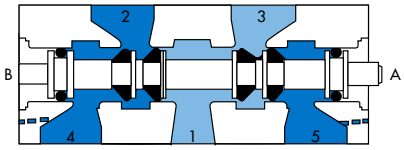
Use an External Pilot model as described above, if both pressures are below the minimum pilot pressure; otherwise use an Internal Pilot model. In either case, use a single pressure model and connect the higher pressure to port #1 (Inlet) and the lower pressure to port #4 (Exhaust) if using cylinder port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

SPOOL CONFIGURATIONS

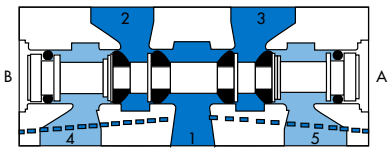
2-POSITION SGL. PRESSURE (SPOOL #12184)
B ACTUATED SHOWN



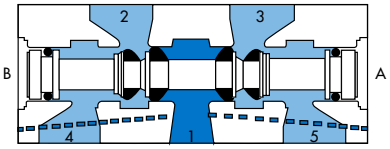
2-POSITION DUAL PRESSURE
(SPOOL ASSY.#10266) B ACTUATED SHOWN



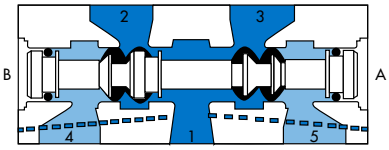
3-POSITION SGL. PRESS. CLOSED CENTER
(SPOOL ASSY. #S-00004) CENTER POSITION SHOWN



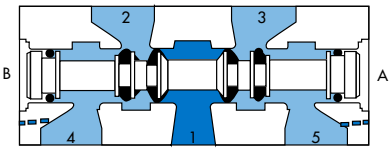
3-POSITION SGL. PRESS. OPEN CENTER
(SPOOL ASSY.#S-00003) CENTER POSITION SHOWN



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



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



Check the warranty page 277

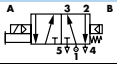
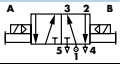
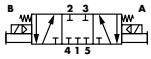
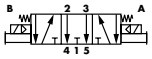
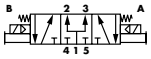
MAC
Series 800

Function	Port size	Flow (Max)	Individual mounting
5/2 - 5/3	**G1/4"**	**1400 Nl/min**	inline

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

MODIFICATIONS - **N° 0358 -** G3/8" inlet and cylinder ports, exhaust ports G1/4"
MODIFICATIONS - **N° 1080 -** NAMUR interface.
Add mod. N° after valve part n°. - **EXAMPLE :** 811C-PM-111CA-155 Mod. 0358.

OPTIONS

811C-PM-111CA-155 - For 2 position dual pressure : replace by 2.

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

Check the warranty page 277

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

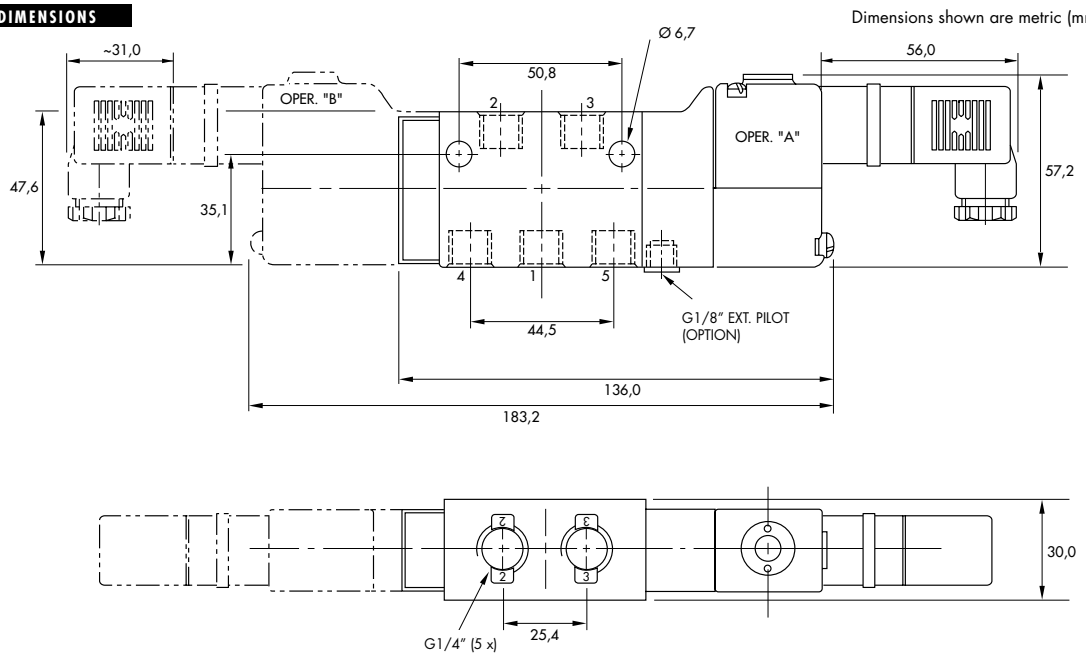
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

Options : • NPTF threads. • NAMUR interface. • Flow control/muffler (G1/4") : 10951

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

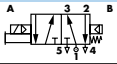
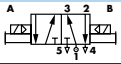
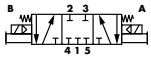
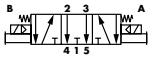
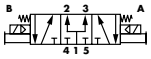
MAC
Series 800

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

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ****

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01
Note : (1) end plate kit required per stack.

OPTIONS

811C-PM-111BA-135 — For 2 position dual pressure : replace by 2.

825C-PM-111BA-835 — For 3 position dual pressure, pressure center : replace by 7.

Check the warranty page 277

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

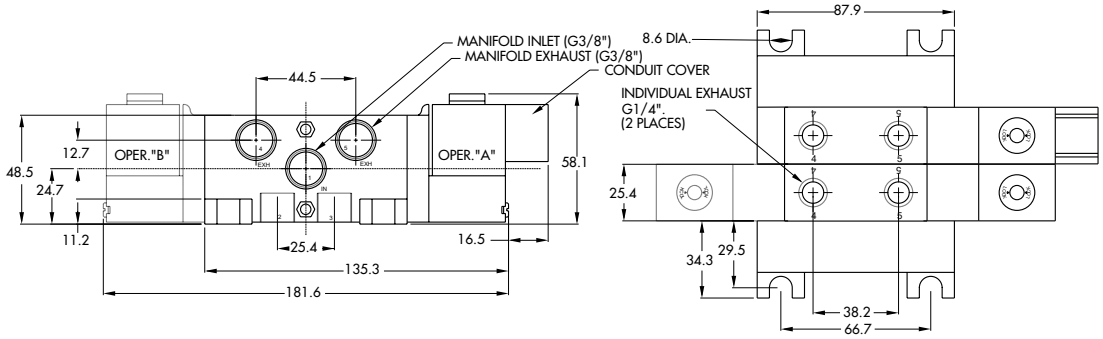
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

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

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

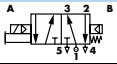
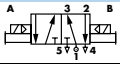
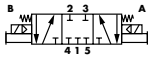
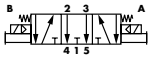
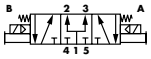
MAC
Series 800

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

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	811C-PM-*XXYZZ*-125	821C-PM-*XXYZZ*-125	825C-PM-*XXYZZ*-525	825C-PM-*XXYZZ*-625	825C-PM-*XXYZZ*-825
G3/8"	811C-PM-*XXYZZ*-126	821C-PM-*XXYZZ*-126	825C-PM-*XXYZZ*-526	825C-PM-*XXYZZ*-626	825C-PM-*XXYZZ*-826

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01
Note : (1) end plate kit required per stack.

OPTIONS

811C-PM-111RA-125 - For 2 position dual pressure : replace by 2.

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

Check the warranty page 277

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

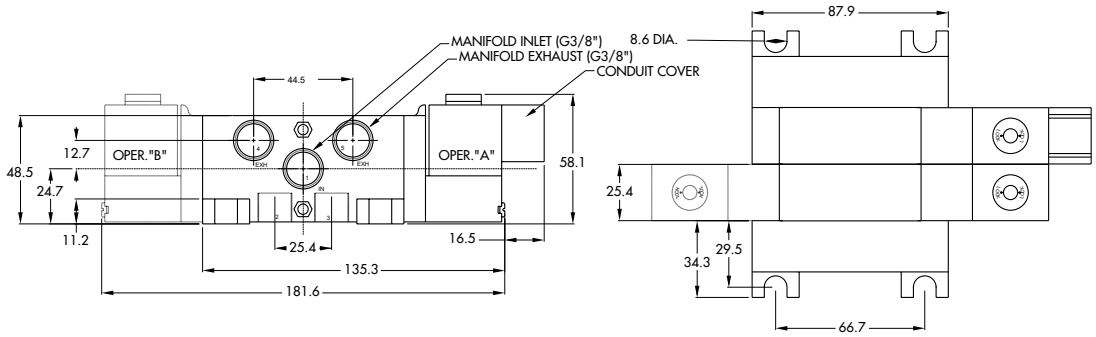
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min, G3/8" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

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

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

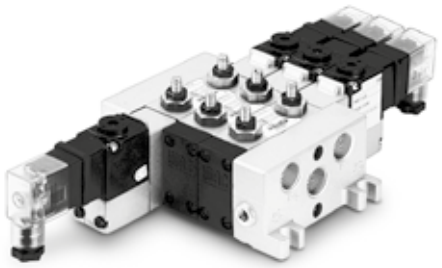
Series 800

Direct solenoid and solenoid pilot operated valves

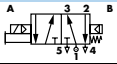
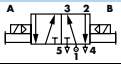
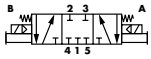
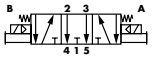
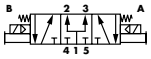
Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	**G1/4" - G3/8"**	**1400 Nl/min**	stacking body with 3 common ports and integral F.C.

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
BA	Flying leads (45 cm)

* Other options available, see page 305.

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

* Remove letter **P** at end of part N°. for NPTF threads; **EXAMPLE** : M-08001-01-01
Note : (1) end plate kit required per stack.

OPTIONS

811C-PM-111RA-195 - For 2 position dual pressure : replace by 2.

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

Check the warranty page 277

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

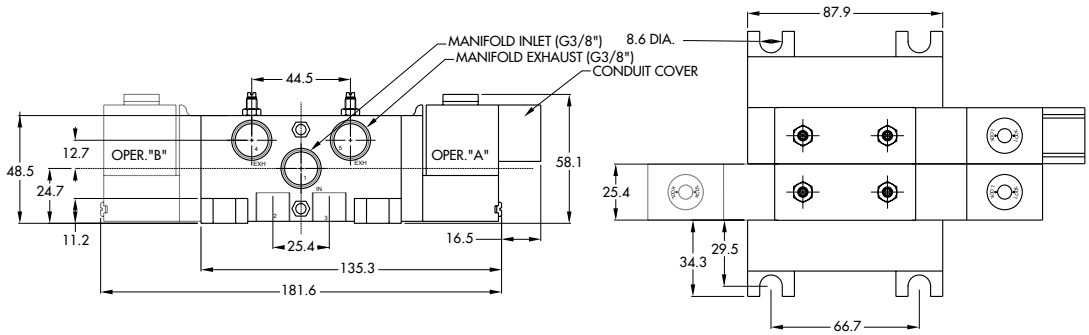
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min, G3/8" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

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

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

Series 800

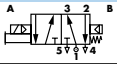
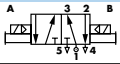
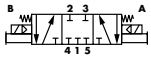
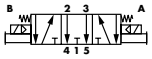
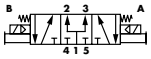
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	**G1/4" - G3/8"**	**1400 Nl/min**	stacking body with 3 common ports with common conduit

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
DA	Common conduit

* Other options available, see page 305.

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

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

MANIFOLD END PLATE KITS (BSPP)*		
INT. PILOT - PART N°.	**EXT. PILOT - PART N°.**	**MODELS USED WITH**
M-08002-01-01P	M-08002-02-01P	Com. conduit models, stacks of 1 thru 16 valves
M-00007-01-01P	M-00007-02-01P	Com. conduit models, stacks of 17 or more valves

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

OPTIONS

811C-PM-111DA-145
- For 2 position dual pressure : replace by 2.

825C-PM-111DA-845
- For 3 position dual pressure, pressure center : replace by 7.

Check the warranty page 277

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

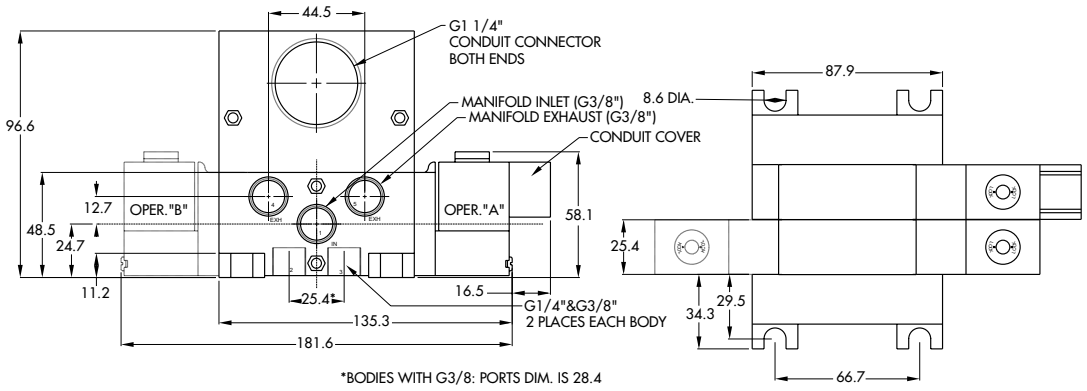
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min, G3/8" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

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

DIMENSIONS

Dimensions shown are metric (mm)



*BODIES WITH G3/8: PORTS DIM. IS 28.4

Check the warranty page 277

MAC

Series 800

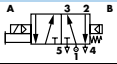
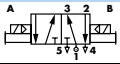
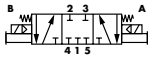
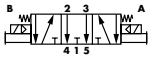
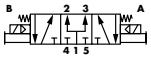
Direct solenoid and solenoid pilot operated valves

Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	**G1/4" - G3/8"**	**1400 Nl/min**	stacking body with 3 common ports with C. C. & integral exh. F. C.

OPERATIONAL BENEFITS

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

HOW TO ORDER

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
DA	Common conduit

* Other options available, see page 305.

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

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

MANIFOLD END PLATE KITS (BSPP)*		
INT. PILOT - PART N°.	**EXT. PILOT - PART N°.**	**MODELS USED WITH**
M-08002-01-01P	M-08002-02-01P	Com. conduit models, stacks of 1 thru 16 valves
M-00007-01-01P	M-00007-02-01P	Com. conduit models, stacks of 17 or more valves

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

OPTIONS

811C-PM-111DA-165
- For 2 position dual pressure : replace by 2.

825C-PM-111DA-865
- For 3 position dual pressure, pressure center : replace by 7.

Check the warranty page 277

MAC

Series 800

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

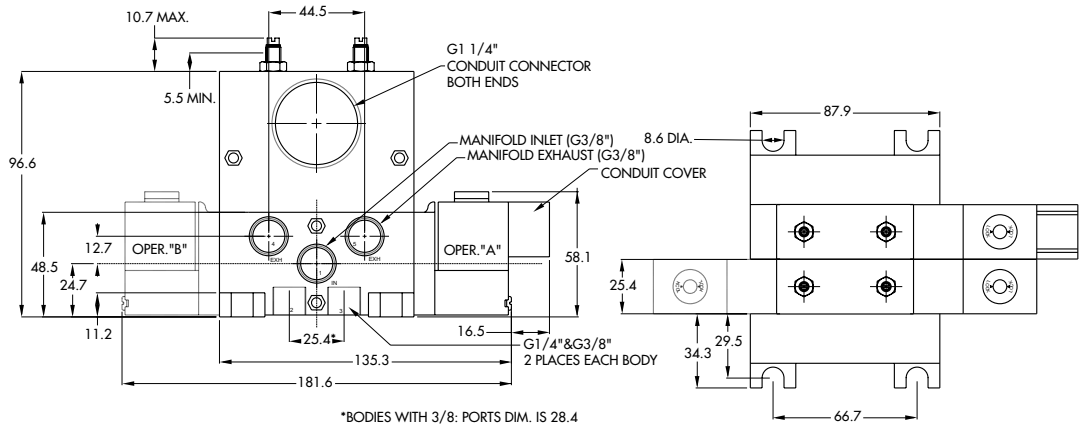
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.3-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 13.3 bar		
Pilot pressure :	Single operator and 3 positions : 1.3-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min, G3/8" : 1400 Nl/min		
Coil :	General purpose - class A wires - Continuous duty - Encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 8 ms	De-energize : 10 ms
	50Hz/6 W	Energize : 5-11 ms	De-energize : 9-16 ms

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

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

DIMENSIONS

Dimensions shown are metric (mm)



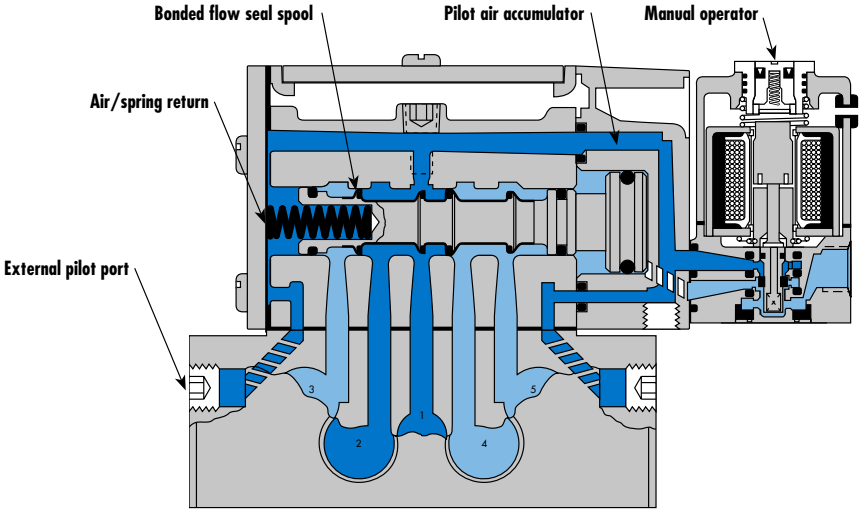
Check the warranty page 277

Individual mounting

valve only

Manifold mounting

valve only



SERIES FEATURES

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

Check the warranty page 277

Series ISO 1

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

EXTERNAL PILOT APPLICATIONS* - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (soleneoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

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

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

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

*Note: 1Bar = 14.5 PSIG

Check the warranty page 277

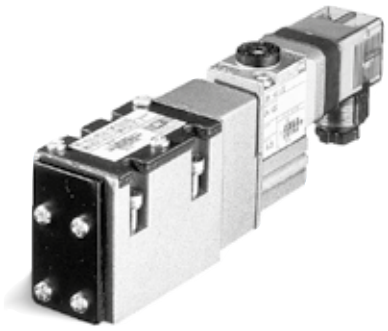
MAC

Series ISO 1

Function	Port size	Flow (Max)	Individual mounting & Manifold Mounting
5/2 - 5/3	**G1/4" - G3/8"**	**1600 Nl/min**	valve only

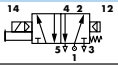
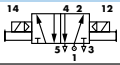
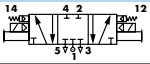
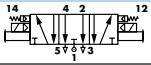
OPERATIONAL BENEFITS

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

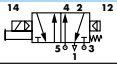
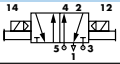
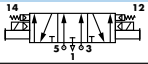


HOW TO ORDER

SINGLE PRESSURE VALVES

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A1C-A111-PM-*XXYZZ*	MV-A1C-A211-PM-*XXYZZ*	MV-A1C-A312-PM-*XXYZZ*	MV-A1C-A311-PM-*XXYZZ*
External	MV-A1C-A121-PM-*XXYZZ*	MV-A1C-A221-PM-*XXYZZ*	MV-A1C-A322-PM-*XXYZZ*	MV-A1C-A321-PM-*XXYZZ*

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

Note : ISO valves are delivered w/o base. See page 261 for base code.

OPTIONS

MV-A1C-A111-PM-*XXYZZ*

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

Check the warranty page 277

MAC

Series ISO 1

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1600 Nl/min, G3/8" : 1600 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 11 ms
	50Hz/6 W	Energize : 7-13 ms	De-energize : 10-17 ms

Spare parts :

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

DIMENSIONS

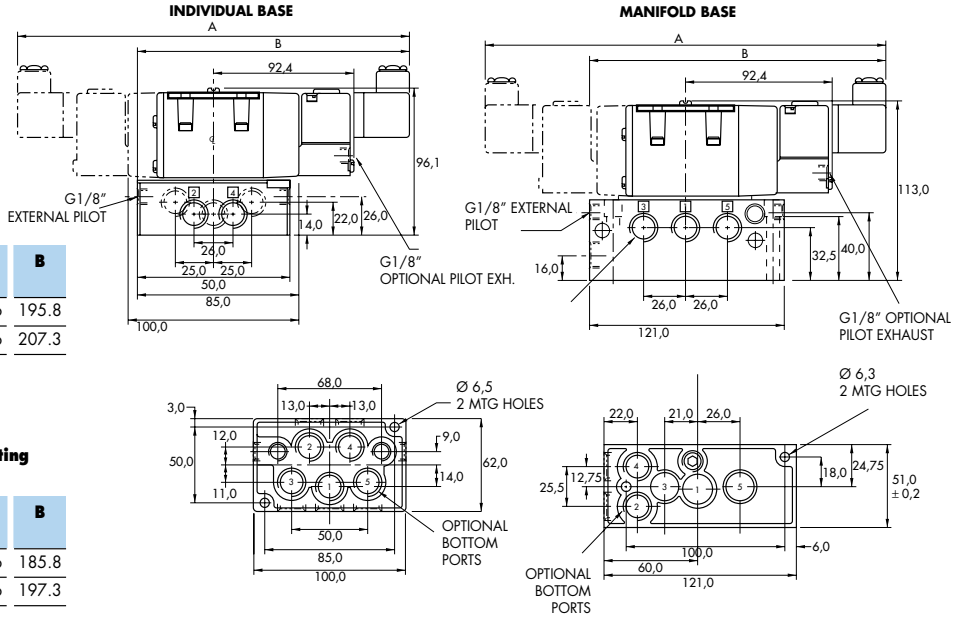
Dimensions shown are metric (mm)

ISO 1 Manifold mounting

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

ISO 1 Individual mounting

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



Check the warranty page 277

Series ISO 1

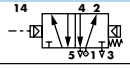
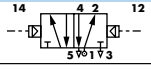
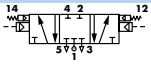
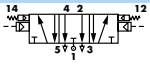
Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	**G1/4" - G3/8"**	**1600 Nl/min**	valve only

OPERATIONAL BENEFITS

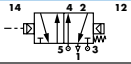
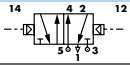
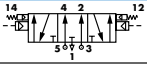
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6.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

HOW TO ORDER

SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A1C-B111	—	—	—
External	MV-A1C-B121	MV-A1C-B221	MV-A1C-B322	MV-A1C-B321

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A1C-B131	—	—
Internal port 5	MV-A1C-B135	—	—
External	MV-A1C-B141	MV-A1C-B241	MV-A1C-B341

Note : ISO valves are delivered w/o base. See page 261 for base code

Check the warranty page 277

MAC

Series ISO 1

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.3 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" - G3/8" : 1600 Nl/min

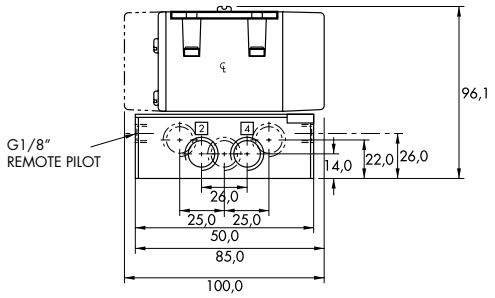
Spare parts :

- Remote air operator 2 positions : R-A1010. • Remote air operator 3 positions : R-A1005B.
- Pressure seal between valve and base : 16344. • Mounting screw body to base (x4) : 35304.

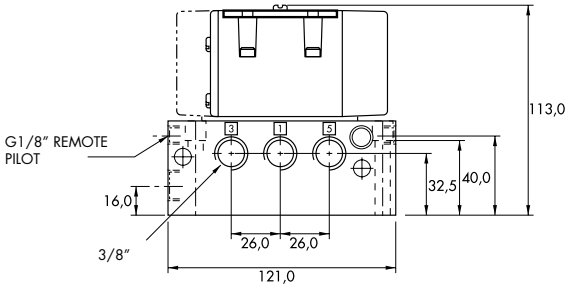
DIMENSIONS

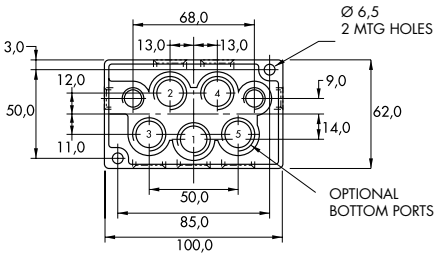
Dimensions shown are metric (mm)

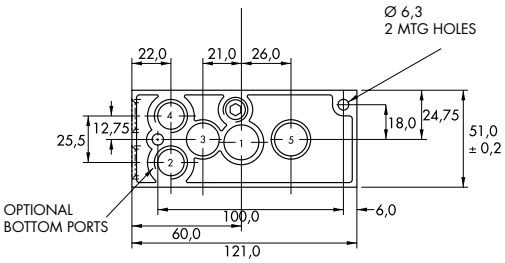
INDIVIDUAL BASE



MANIFOLD BASE







Check the warranty page 277

HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/4"	MB-A1C-121	MB-A1C-123	MB-A1C-122	MB-A1C-124
G3/8"	MB-A1C-131	MB-A1C-133	MB-A1C-132	MB-A1C-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/4"	HB-A1A-A	HB-A1A-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/4"	MM-A1C-121	MM-A1C-123	MM-A1C-122	MM-A1C-124
G3/8"	MM-A1C-131	MM-A1C-133	MM-A1C-132	MM-A1C-134

Manifold fastening kit : N-63002-01.

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G1/4"	HM-A1A-C

End plate kit : HM-A1A-D.

Check the warranty page 277

Series ISO 1

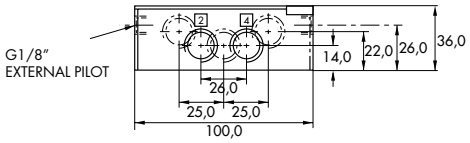
100% OF PRODUCTION TESTED 100%

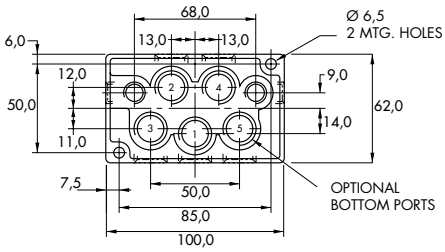
WARRANTY 18 MONTHS

DIMENSIONS

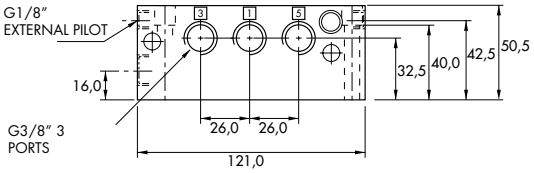
Dimensions shown are metric (mm)

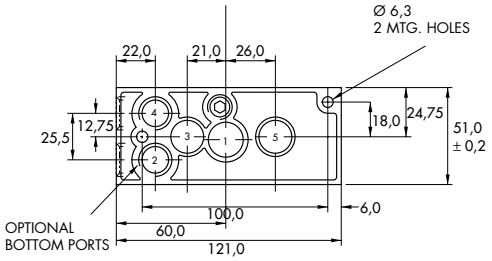
Individual DIN 5599/1



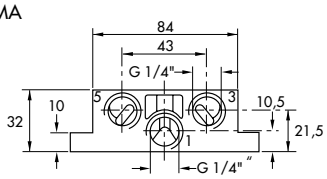


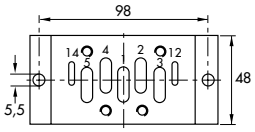
Manifold

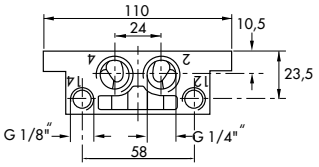




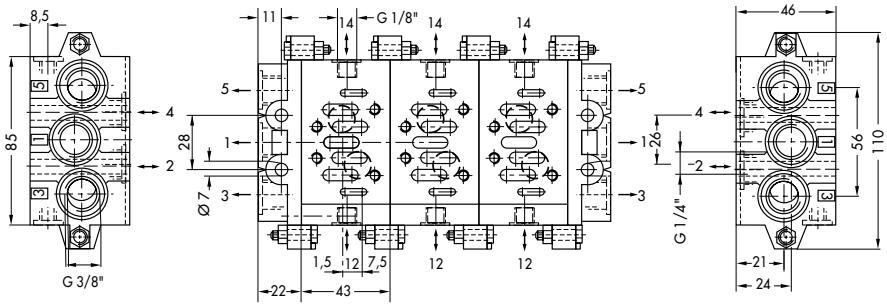
VDMA







Individual



Manifold

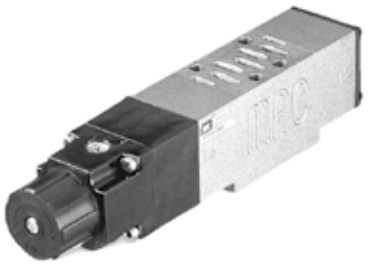
Check the warranty page 277

Series **PRA1A**

Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

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



HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-GAAA	PRA1A-GCAA	PRA1A-GBAA	PRA1A-GDAA	PRA1A-GEAA
Gauge parallel to regulator(s)	PRA1A-GADA	PRA1A-GCDA	PRA1A-GBDA	PRA1A-GDDA	PRA1A-GEEA
Gauge perpendicular to regulator(s)	PRA1A-GABA	PRA1A-GCBA	PRA1A-GBBA	PRA1A-GDBA	PRA1A-GECA

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-HAAA	PRA1A-HCAA	PRA1A-HBAA	PRA1A-HDAA	PRA1A-HEAA
Gauge parallel to regulator(s)	PRA1A-HADA	PRA1A-HCDA	PRA1A-HBDA	PRA1A-HDDA	PRA1A-HEEA
Gauge perpendicular to regulator(s)	PRA1A-HABA	PRA1A-HCBA	PRA1A-HBBA	PRA1A-HDBA	PRA1A-HECA

***** - To be used with dual pressure valves.
Valve code is : MV-A1C-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A1C-AX4X-PM-XXYZZ (dual pressure ext. pilot)
Note : regulating range for above models is 0-8 bar. For other ranges see technical data page.

Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

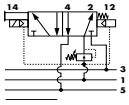
ADJUSTMENT OPTIONS

PRA1A-*xxxx*

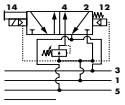
- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external/remote air)
- Replace by K for slotted stem with locknut (internal pilot)
- Replace by L for slotted stem with locknut (external/remote air)

Manual adjust

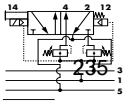
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PRA1A**

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 8 bar (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1000 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PRA1A-J0AA (KNOB), PRA1A-C0AA (SLOTTED STEM), PRA1A-M0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : N-82016-01 (0-8 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)

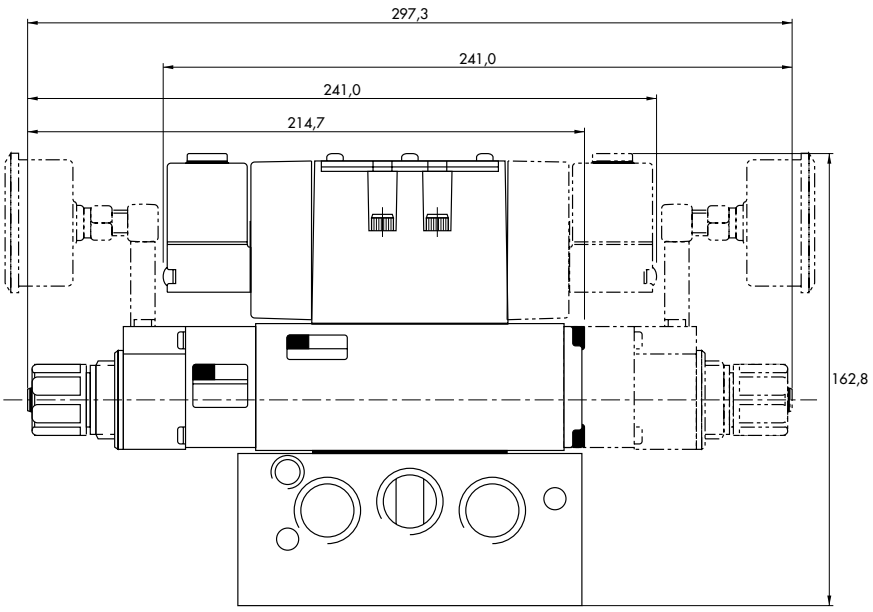
Regulating range options :

PRA1A-XXXA

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)



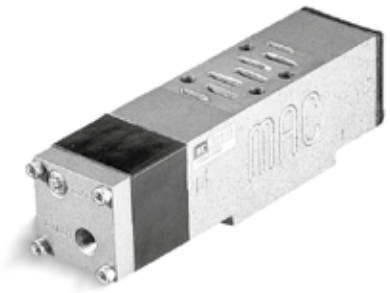
Check the warranty page 277

Series **PRA1A**

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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



HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-DAAA	PRA1A-DCAA	PRA1A-DBAA	PRA1A-DDAA	PRA1A-DEAA
Gauge parallel to regulator(s)	PRA1A-DADA	PRA1A-DCDA	PRA1A-DBDA	PRA1A-DDDA	PRA1A-DEEA
Gauge perpendicular to regulator(s)	PRA1A-DABA	PRA1A-DCBA	PRA1A-DBBA	PRA1A-DDBA	PRA1A-DECA

EXTERNAL PILOT AND REMOTE AIR

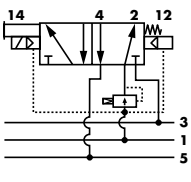
Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA1A-EAAA	PRA1A-ECAA	PRA1A-EBAA	PRA1A-EDAA	PRA1A-EEAA
Gauge parallel to regulator(s)	PRA1A-EADA	PRA1A-ECDA	PRA1A-EBDA	PRA1A-EDDA	PRA1A-EEEA
Gauge perpendicular to regulator(s)	PRA1A-EABA	PRA1A-ECBA	PRA1A-EBBA	PRA1A-EDBA	PRA1A-EECA

* - To be used with dual pressure valves.
Valve code is : MV-A1C-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A1C-AX4X-PM-XXYZZ (dual pressure ext. pilot)

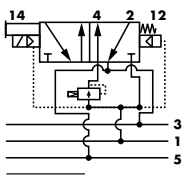
Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35336.

Air adjust

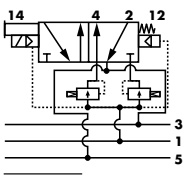
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PRA1A**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

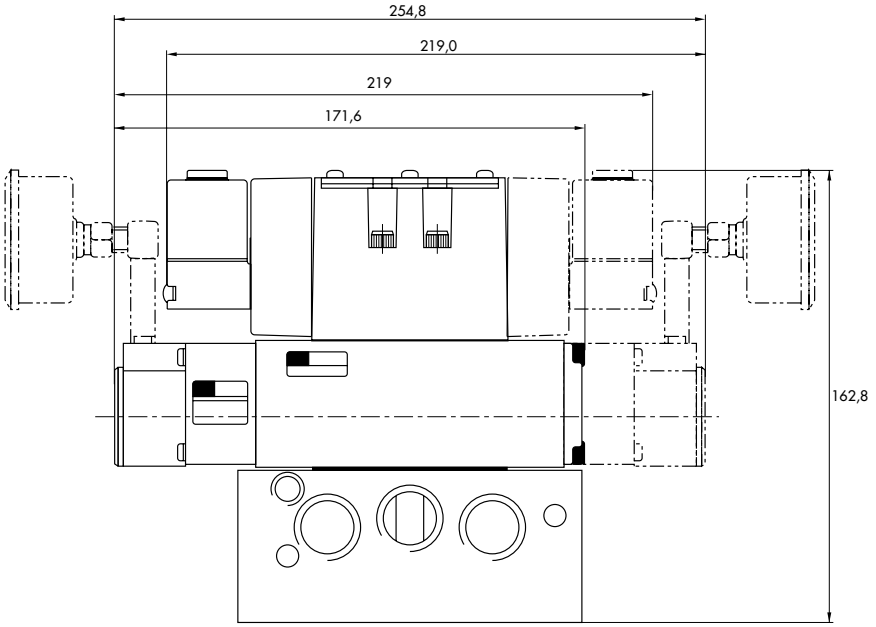
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 8 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	1000 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PRA1A-F0AA.
- Gauges : N-82016-01 (0-8 bar perpendicular)
  N-82016-02 (0-8 bar parallel)

DIMENSIONS

Dimensions shown are metric (mm)



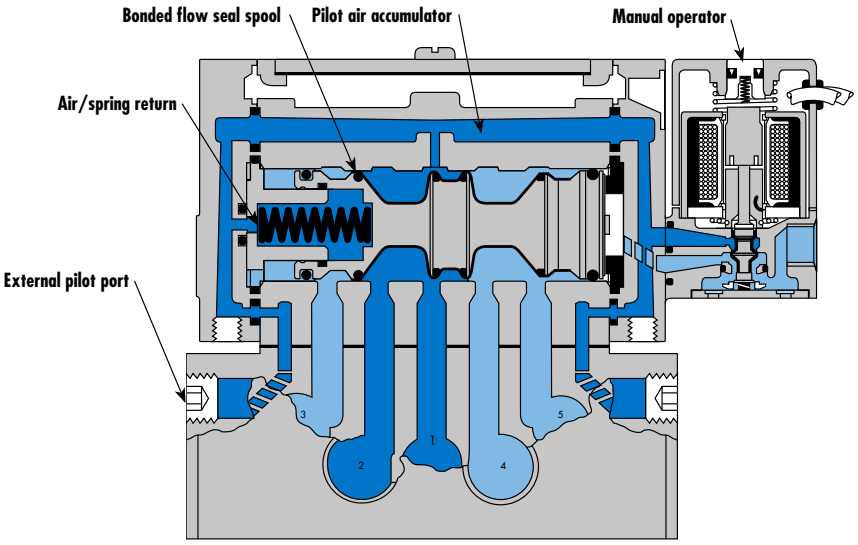
Check the warranty page 277

Individual mounting

valve only

Manifold mounting

valve only



SERIES FEATURES

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

Check the warranty page 277

Series ISO 2

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

EXTERNAL PILOT APPLICATIONS* - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (soleneoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

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

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

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

*Note: 1Bar = 14.5 PSIG

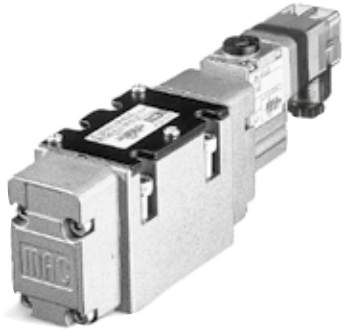
Check the warranty page 277

Series ISO 2

Function	Port size	Flow (Max)	Individual mounting & Manifold Mounting
5/2 - 5/3	**G3/8" - G1/2"**	**3000 Nl/min**	valve only

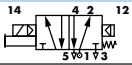
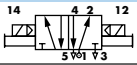
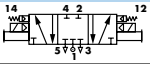
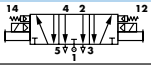
OPERATIONAL BENEFITS

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

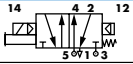
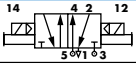
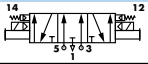


HOW TO ORDER

SINGLE PRESSURE VALVES

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

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ➤ **XX Y ZZ** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

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

OPTIONS

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

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

Check the warranty page 277

MAC

Series ISO 2

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G3/8" : 3000 Nl/min, G1/2" : 3000 Nl/min)		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 10 ms	De-energize : 15 ms
	50Hz/6 W	Energize : 6-15 ms	De-energize : 10-17 ms

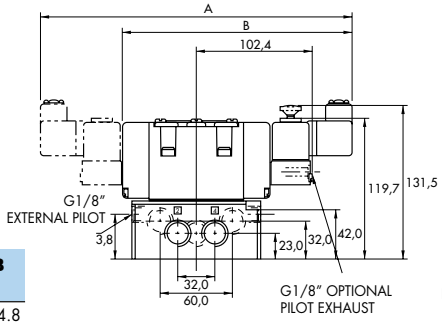
Spare parts :

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

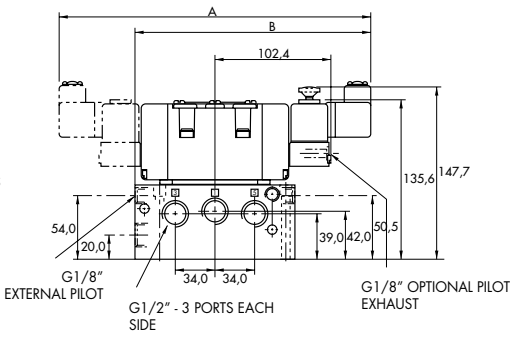
DIMENSIONS

Dimensions shown are metric (mm)

INDIVIDUAL BASE



MANIFOLD BASE

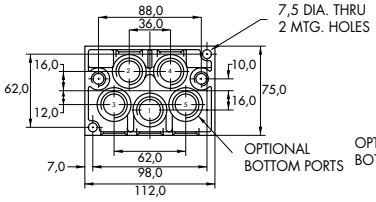


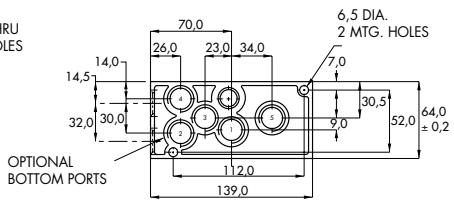
ISO 2 Manifold mounting

TYPE	A	B
JA & JC	291.6	214.8
JB & JD	314.6	226.3

ISO 2 Individual mounting

TYPE	A	B
JA & JC	291.6	212.3
JB & JD	314.6	223.8





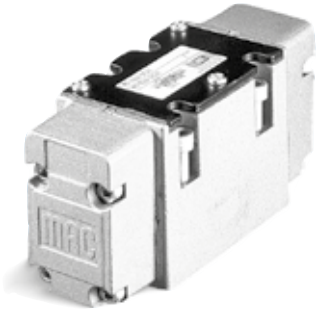
Check the warranty page 277

Series ISO 2

Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	**G3/8" - G1/2"**	**3000 Nl/min**	valve only

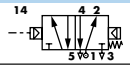
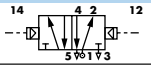
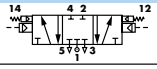
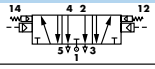
OPERATIONAL BENEFITS

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

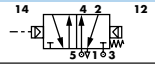
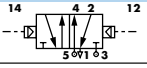
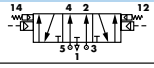


HOW TO ORDER

SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A2B-B111	—	—	—
External	MV-A2B-B121	MV-A2B-B221	MV-A2B-B322	MV-A2B-B321

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A2B-B131	—	—
Internal port 5	MV-A2B-B135	—	—
External	MV-A2B-B141	MV-A2B-B241	MV-A2B-B341

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

Check the warranty page 277

MAC

Series ISO 2

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

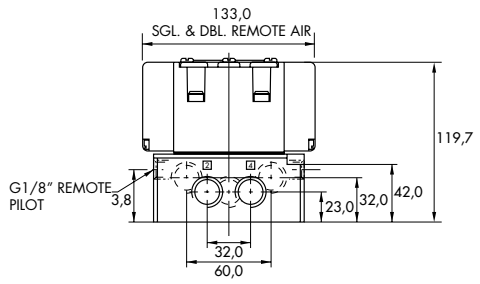
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)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

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

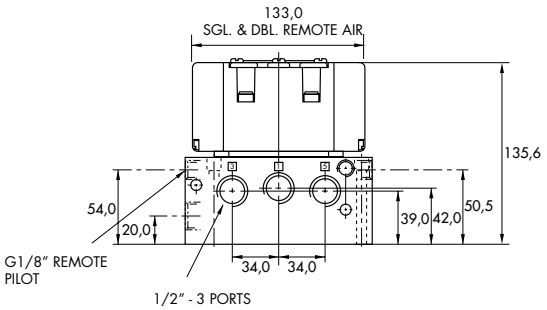
DIMENSIONS

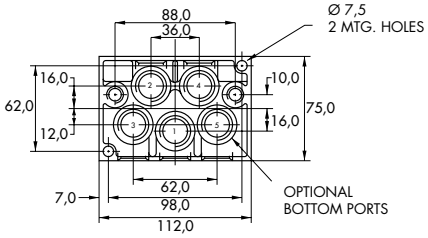
Dimensions shown are metric (mm)

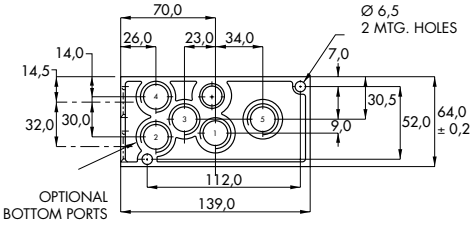
SHOWN ON INDIVIDUAL BASE



SHOWN ON MANIFOLD BASE







Check the warranty page 277

HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G3/8"	MB-A2B-121	MB-A2B-123	MB-A2B-122	MB-A2B-124
G1/2"	MB-A2B-131	MB-A2B-133	MB-A2B-132	MB-A2B-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G3/8"	HB-A2B-A	HB-A2B-B

MANIFOLD BASE

Port size	Side ports	Bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G3/8"	MM-A2B-121	MM-A2B-123	MM-A2B-122	MM-A2B-124
G1/2"	MM-A2B-131	MM-A2B-133	MM-A2B-132	MM-A2B-134

Manifold fastening kit : N-63002-01.

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G3/8"	HM-A2B-C

End plate kit : HM-A2B-D.

Check the warranty page 277

Series ISO 2

100% OF PRODUCTION TESTED 100%

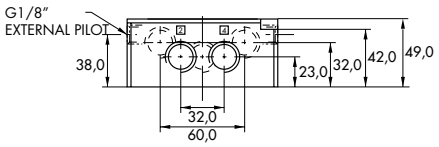
WARRANTY 18 MONTHS

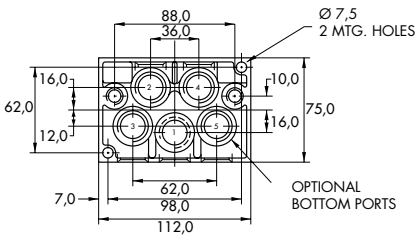
DIMENSIONS

Dimensions shown are metric (mm)

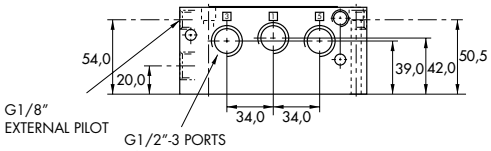
Individual

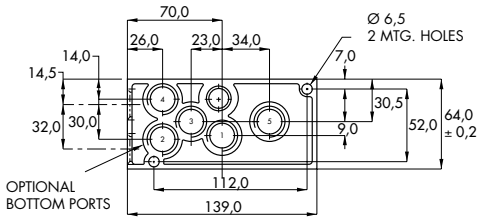
DIN 5599/1



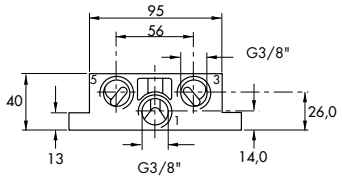


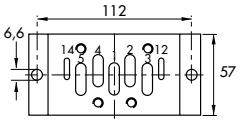
Manifold

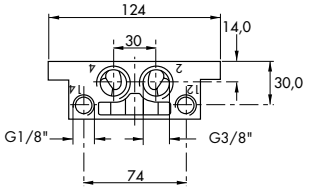




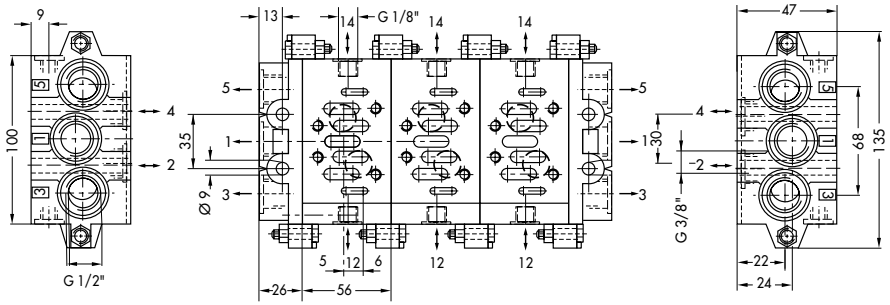
VDMA







Individual



Manifold

Check the warranty page 277

Series **PRA2D**

Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

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

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-1AAA	PRA2D-1EAA	PRA2D-1BAA	PRA2D-1FAA	PRA2D-1JAA
Non-filled gauge on regulator(s)	PRA2D-1ADA	PRA2D-1EDA	PRA2D-1BDA	PRA2D-1FDA	PRA2D-1JEA
Non-filled gauge opposite to regulator	PRA2D-1CDA	PRA2D-1GDA	PRA2D-1DDA	PRA2D-1HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-1ABA	PRA2D-1EBA	PRA2D-1BBA	PRA2D-1FBA	PRA2D-1JCA
Glycerine filled gauge opposite to regulator	PRA2D-1CBA	PRA2D-1GBA	PRA2D-1DBA	PRA2D-1HBA	—

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-2AAA	PRA2D-2EAA	PRA2D-2BAA	PRA2D-2FAA	PRA2D-2JAA
Non-filled gauge on regulator(s)	PRA2D-2ADA	PRA2D-2EDA	PRA2D-2BDA	PRA2D-2FDA	PRA2D-2JEA
Non-filled gauge opposite to regulator	PRA2D-2CDA	PRA2D-2GDA	PRA2D-2DDA	PRA2D-2HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-2ABA	PRA2D-2EBA	PRA2D-2BBA	PRA2D-2FBA	PRA2D-2JCA
Glycerine filled gauge opposite to regulator	PRA2D-2CBA	PRA2D-2GBA	PRA2D-2DBA	PRA2D-2HBA	—

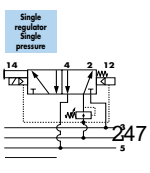
* - To be used with dual pressure valves.
Valve code is : MV-A2B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A2B-AX4X-PM-XXYZZ (dual pressure ext. pilot)
Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.
Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

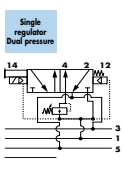
ADJUSTMENT OPTIONS

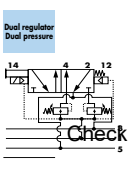
PRA2D-*xxxx*

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external pilot)
- Replace by D for slotted stem with locknut (internal pilot)
- Replace by E for slotted stem with locknut (external pilot)

Manual adjust







Check the warranty page 277

Series **PRA2D**

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 (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2300 Nl/min

Spare parts :

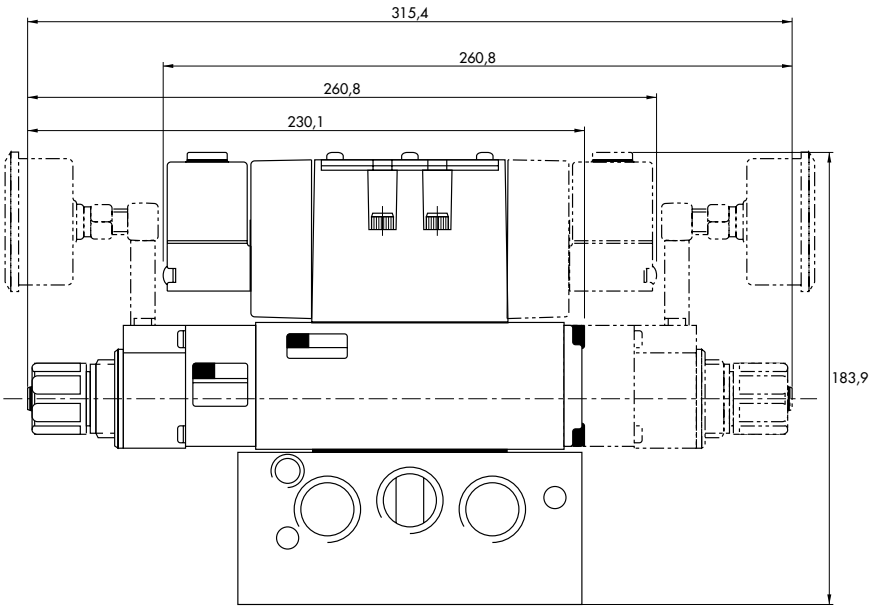
- Pressure regulator (less sandwich block) : PRA2D-30AA (KNOB), PRA2D-C0AA (SLOTTED STEM), PRA2D-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

Regulating range options : PRA2D-XXXA

- Replace by B - 0 to 6.7 bar
- Replace by C - 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



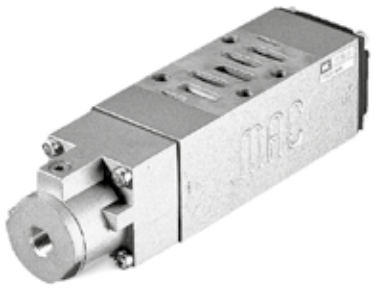
Check the warranty page 277

Series **PRA2D**

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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



HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	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

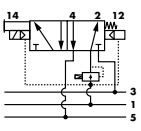
Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA2D-5AAA	PRA2D-5EAA	PRA2D-5BAA	PRA2D-5FAA	PRA2D-5JAA
Non-filled gauge on regulator(s)	PRA2D-5ADA	PRA2D-5EDA	PRA2D-5BDA	PRA2D-5FDA	PRA2D-5JEA
Non-filled gauge opposite to regulator	PRA2D-5CDA	PRA2D-5GDA	PRA2D-5DDA	PRA2D-5HDA	—
Glycerine filled gauge on regulator(s)	PRA2D-5ABA	PRA2D-5EBA	PRA2D-5BBA	PRA2D-5FBA	PRA2D-5JCA
Glycerine filled gauge opposite to regulator	PRA2D-5CBA	PRA2D-5GBA	PRA2D-5DBA	PRA2D-5HBA	—

* - To be used with dual pressure valves.
Valve code is : MV-A2B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A2B-AX4X-PM-XXYZZ (dual pressure ext. pilot)

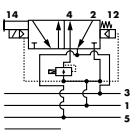
Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #19177.

Air adjust

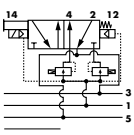
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series **PRA2D**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

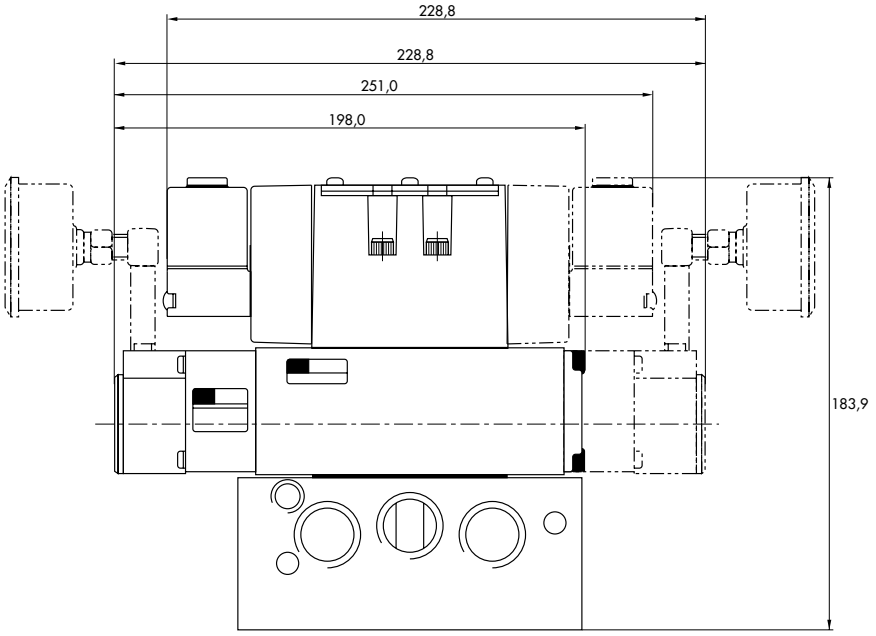
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	2300 Nl/min

Spare parts :

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

DIMENSIONS

Dimensions shown are metric (mm)



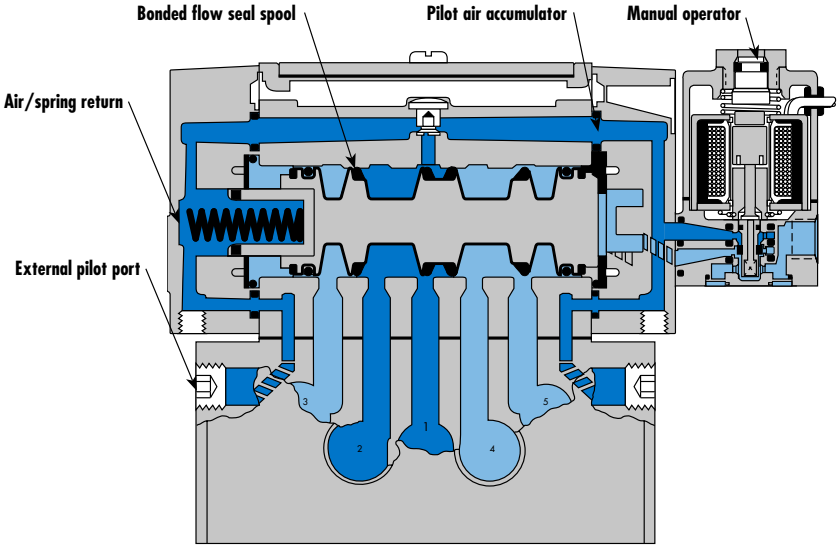
Check the warranty page 277

Individual mounting

valve only

Manifold mounting

valve only



SERIES FEATURES

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

Check the warranty page 277

Series ISO 3

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

EXTERNAL PILOT APPLICATIONS* - An External Pilot Supply is only required when the main valve pressure is less than 1.8 BARS on single operators (soleneoid or remote air) or 0.7 BARS on double solenoid valves only. In these cases, use an External Pilot model and supply a minimum of 1.8 BARS for single operators or a minimum of 0.7 BARS for double solenoid valves to either the "14" or "12" External Pilot Port of the valve base.

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

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

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

*Note: 1Bar = 14.5 PSIG

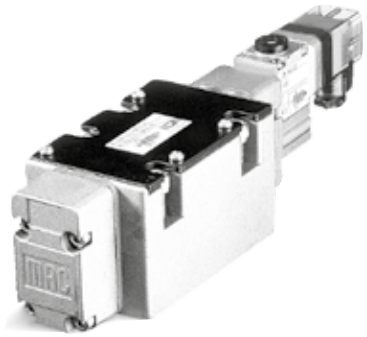
Check the warranty page 277

MAC
Series ISO 3

Function	Port size	Flow (Max)	Individual mounting & Manifold Mounting
5/2 - 5/3	**G1/2" - G3/4"**	**6300 Nl/min**	valve only

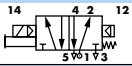
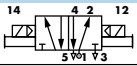
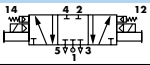
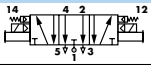
OPERATIONAL BENEFITS

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

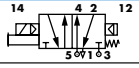
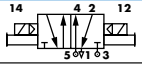


HOW TO ORDER

SINGLE PRESSURE VALVES

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

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ➤ ***XX Y ZZ*** *

XX	Voltage
11	110V~/50Hz
12	220V~/50Hz
22	24V~/50Hz
59	24V=/2,5W
87	24V=/17,1W
61	24V=/8,5W

Y	Manual operator
1	Non-locking
2	Locking

ZZ	Electrical connection
JB	Rectangular connector
JD	Rectangular connector with light
JA	Square connector
JC	Square connector with light
BA	Flying leads (45 cm)

Note : Photo shown with JC connector.

* Other options available, see page 305.

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

OPTIONS

MV-A3B-A111-PM-*XXYZZ*

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

Check the warranty page 277

MAC

Series ISO 3

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

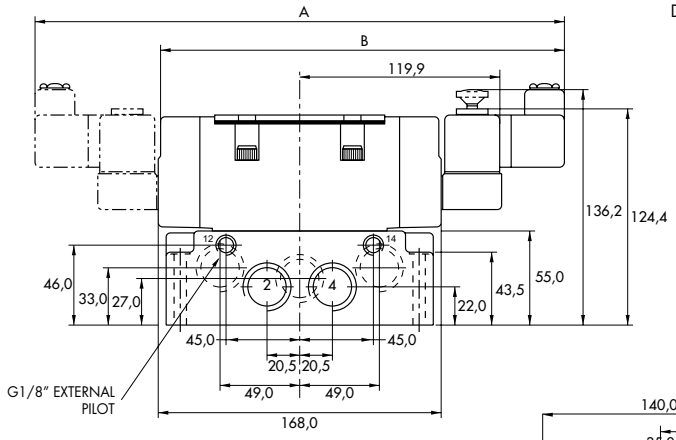
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 1.7-10 bar		double operator : 0.7-10 bar
	External pilot : vacuum to 10 bar		
Pilot pressure :	Single operator and 3 positions : 1.7-10 bar	Double operator : 0.7-10 bar	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	-18°C to 50°C (0°F to 120°F)		
Flow (at 6 bar, ΔP=1bar) :	G1/2" : 6300 Nl/min, G3/4" : 6300 Nl/min		
Coil :	Epoxy encapsulated - class A wires - Continuous duty		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	Consult factory		
Power :	~ Inrush : 14.8 VA	Holding : 10.9 VA	
	= 1 to 17.1 W		
Response times :	24 V=/8.5 W	Energize : 18 ms	De-energize : 20 ms
	50Hz/6 W	Energize : 15-25 ms	De-energize : 19-28 ms

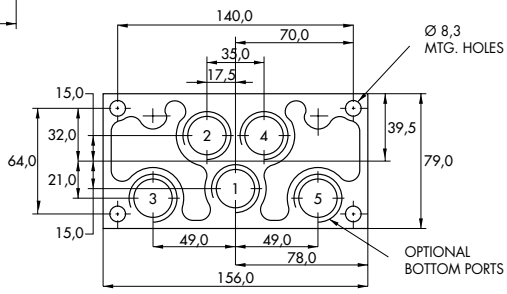
Spare parts :

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

DIMENSIONS

Dimensions shown are metric (mm)





ISO 3 Individual mounting

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

Check the warranty page 277

Series ISO 3

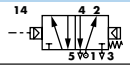
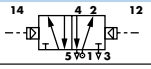
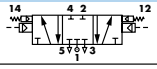
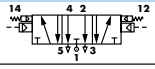
Function	Port size	Flow (Max)	Individual mounting
5/2 - 5/3	**G1/2" - G3/4"**	**6300 Nl/min**	valve only

OPERATIONAL BENEFITS

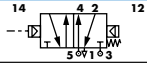
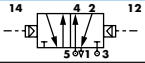
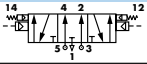
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6.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

HOW TO ORDER

SINGLE PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
				
Internal	MV-A3B-B111	—	—	—
External	MV-A3B-B121	MV-A3B-B221	MV-A3B-B322	MV-A3B-B321

DUAL PRESSURE VALVES

Air spring	5/2 Single operator	5/2 Double operator	5/3 Pressure center
			
Internal port 3	MV-A3B-B131	—	—
Internal port 5	MV-A3B-B135	—	—
External	MV-A3B-B141	MV-A3B-B241	MV-A3B-B341

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

Check the warranty page 277

Series ISO 3

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

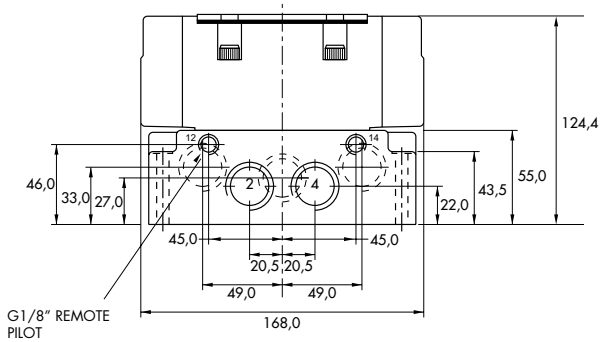
TECHNICAL DATA

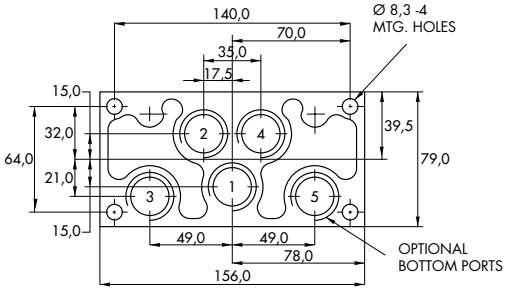
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/2" - G3/4" : 6300 Nl/min

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

DIMENSIONS

Dimensions shown are metric (mm)





Check the warranty page 277

HOW TO ORDER

INDIVIDUAL BASE

Port size	Side ports	Side & bottom ports	Bottom cylinder ports 2 and 4.	Bottom inlet port 1
G1/2"	MB-A3B-121	MB-A3B-123	MB-A3B-122	MB-A3B-124
G3/4"	MB-A3B-131	MB-A3B-133	MB-A3B-132	MB-A3B-134

INDIVIDUAL BASE ACCORDING TO VDMA 24345

Port size	Side ports	Bottom ports
G1/2"	HB-A3B-A	HB-A3B-B

MANIFOLD BASE ACCORDING TO VDMA 24345

Port size	Bottom cylinder ports 2 and 4
G1/2"	HM-A3B-C

End plate kit : HM-A3B-D.

Check the warranty page 277

Series ISO 3

100% OF PRODUCTION TESTED 100%

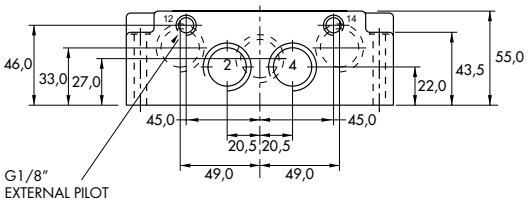
WARRANTY 18 MONTHS

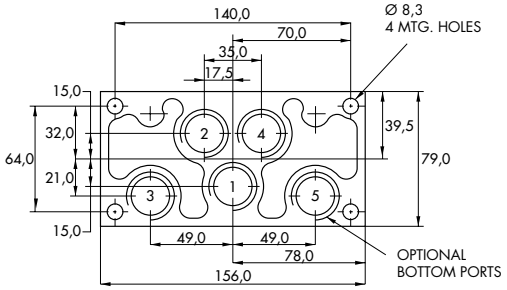
DIMENSIONS

Dimensions shown are metric (mm)

Individual

ISO DIN 5599/1





Check the warranty page 277

Series PRA3C

Sandwich pressure regulator with manual adjust knob.

OPERATIONAL BENEFITS

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

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-1AAA	PRA3C-1EAA	PRA3C-1BAA	PRA3C-1FAA	PRA3C-1JAA
Non-filled gauge on regulator(s)	PRA3C-1ADA	PRA3C-1EDA	PRA3C-1BDA	PRA3C-1FDA	PRA3C-1JEA
Non-filled gauge opposite to regulator	PRA3C-1CDA	PRA3C-1GDA	PRA3C-1DDA	PRA3C-1HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-1ABA	PRA3C-1EBA	PRA3C-1BBA	PRA3C-1FBA	PRA3C-1JCA
Glycerine filled gauge opposite to regulator	PRA3C-1CBA	PRA3C-1GBA	PRA3C-1DBA	PRA3C-1HBA	—

EXTERNAL PILOT AND REMOTE AIR

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-2AAA	PRA3C-2EAA	PRA3C-2BAA	PRA3C-2FAA	PRA3C-2JAA
Non-filled gauge on regulator(s)	PRA3C-2ADA	PRA3C-2EDA	PRA3C-2BDA	PRA3C-2FDA	PRA3C-2JEA
Non-filled gauge opposite to regulator	PRA3C-2CDA	PRA3C-2GDA	PRA3C-2DDA	PRA3C-2HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-2ABA	PRA3C-2EBA	PRA3C-2BBA	PRA3C-2FBA	PRA3C-2JCA
Glycerine filled gauge opposite to regulator	PRA3C-2CBA	PRA3C-2GBA	PRA3C-2DBA	PRA3C-2HBA	—

* - To be used with dual pressure valves.
Valve code is : MV-A3B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A3B-AX4X-PM-XXYZZ (dual pressure ext. pilot)
Note : regulating range for above models is 0-10 bar.
For other ranges see technical data page.

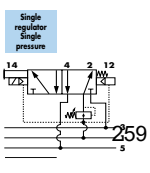
Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

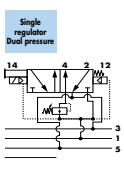
ADJUSTMENT OPTIONS

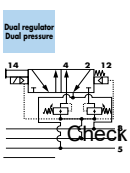
PRA3C-*xxxx*

- Replace by A for slotted stem adjustment (internal pilot)
- Replace by B for slotted stem adjustment (external pilot)
- Replace by D for slotted stem with locknut (internal pilot)
- Replace by E for slotted stem with locknut (external pilot)

Manual adjust







Check the warranty page 277

Series **PRA3C**

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 (other ranges see below)
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	5400 Nl/min

Spare parts :

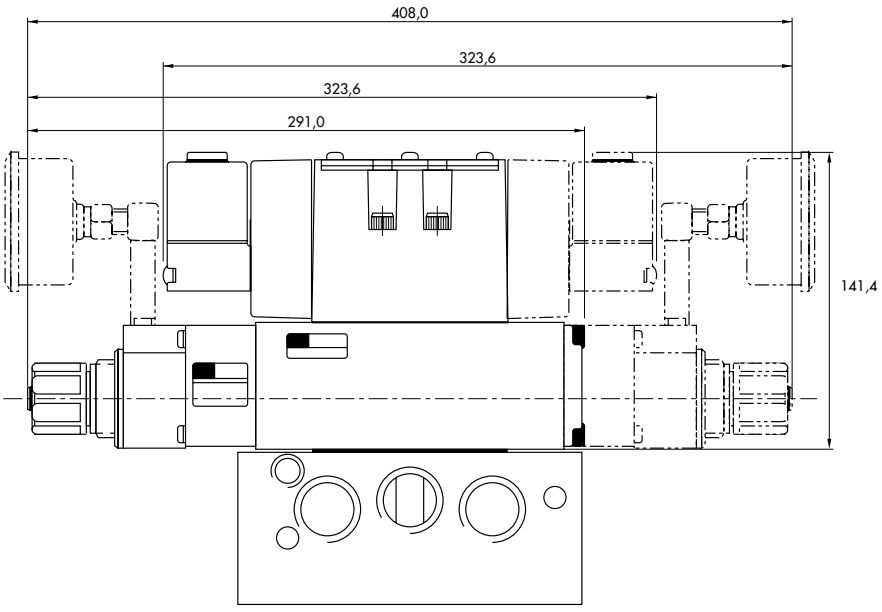
- Pressure regulator (less sandwich block) : PRA3C-30AA (KNOB), PRA3C-C0AA (SLOTTED STEM), PRA3C-F0AA (SLOTTED STEM WITH LOCKNUT).
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

Regulating pressure options :

PRA3C-XXXA
- Replace by B - 0 to 6.7 bar
- Replace by C - 0 to 3 bar

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

Series PRA3C

Sandwich pressure regulator with air pilot adjust.

OPERATIONAL BENEFITS

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

HOW TO ORDER

INTERNAL PILOT

Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-4AAA	PRA3C-4EAA	PRA3C-4BAA	PRA3C-4FAA	PRA3C-4JAA
Non-filled gauge on regulator(s)	PRA3C-4ADA	PRA3C-4EDA	PRA3C-4BDA	PRA3C-4FDA	PRA3C-4JEA
Non-filled gauge opposite to regulator	PRA3C-4CDA	PRA3C-4GDA	PRA3C-4DDA	PRA3C-4HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-4ABA	PRA3C-4EBA	PRA3C-4BBA	PRA3C-4FBA	PRA3C-4JCA
Glycerine filled gauge opposite to regulator	PRA3C-4CBA	PRA3C-4GBA	PRA3C-4DBA	PRA3C-4HBA	—

EXTERNAL PILOT AND REMOTE AIR

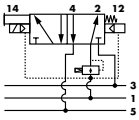
Gauges	Single pressure Regulator 14 end Same regulated pressure to ports 2 and 4	Single pressure Regulator 12 end Same regulated pressure to ports 2 and 4	Dual pressure * Regulator 14 end Regulated pressure to port 4	Dual pressure * Regulator 12 end Regulated pressure to port 2	Dual pressure * Dual regulator Two regulated pressures to ports 2 and 4
No gauge	PRA3C-5AAA	PRA3C-5EAA	PRA3C-5BAA	PRA3C-5FAA	PRA3C-5JAA
Non-filled gauge on regulator(s)	PRA3C-5ADA	PRA3C-5EDA	PRA3C-5BDA	PRA3C-5FDA	PRA3C-5JEA
Non-filled gauge opposite to regulator	PRA3C-5CDA	PRA3C-5GDA	PRA3C-5DDA	PRA3C-5HDA	—
Glycerine filled gauge on regulator(s)	PRA3C-5ABA	PRA3C-5EBA	PRA3C-5BBA	PRA3C-5FBA	PRA3C-5JCA
Glycerine filled gauge opposite to regulator	PRA3C-5CBA	PRA3C-5GBA	PRA3C-5DBA	PRA3C-5HBA	—

* - To be used with dual pressure valves.
Valve code is : MV-A3B-AX5X-PM-XXYZZ (sgl. pressure ext. pilot)
Valve code is : MV-A3B-AX4X-PM-XXYZZ (dual pressure ext. pilot)

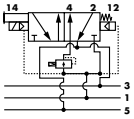
Main valve body assembly must be external pilot model. Pilots are supplied internally from primary pressure in regulator block.
Cannot field convert regulator block from Single Pressure to dual pressure. Body/Block to base mounting screw #35418.

Air adjust

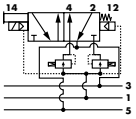
Single regulator Single pressure



Single regulator Dual pressure



Dual regulator Dual pressure



Check the warranty page 277

Series PRA3C

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

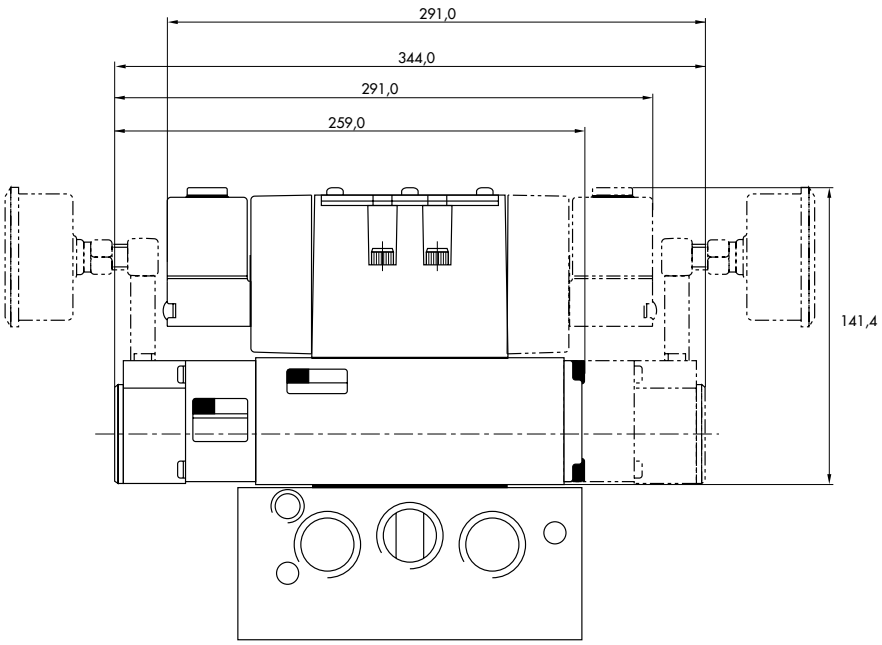
Fluid :	Compressed air, inert gases
Pressure range :	0 to 10 bar
Regulating range :	0 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow :	5400 Nl/min

Spare parts :

- Pressure regulator (less sandwich block) : PRA3C-60AA.
- Gauges : • Glycerine filled : N-62015-01
  • Non filled : N-62016-01

DIMENSIONS

Dimensions shown are metric (mm)



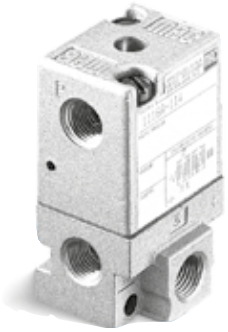
Check the warranty page 277

Series **1100**

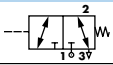
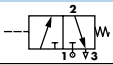
Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/8" - G1/4"**	**180 Nl/min**	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

Air pilot port : G1/8".

Check the warranty page 277

MAC

Series **1100**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

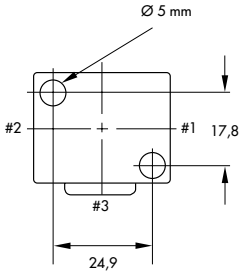
TECHNICAL DATA

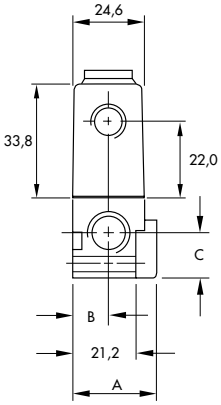
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 60°C (0°F to 140°F)
Flow (at 6 bar, ΔP=1bar) :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

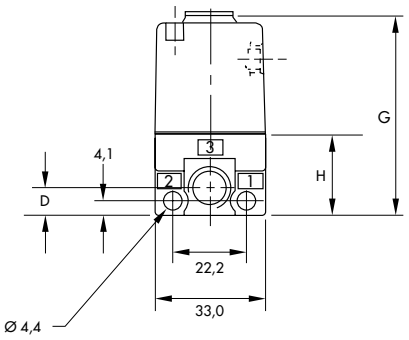
Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)







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

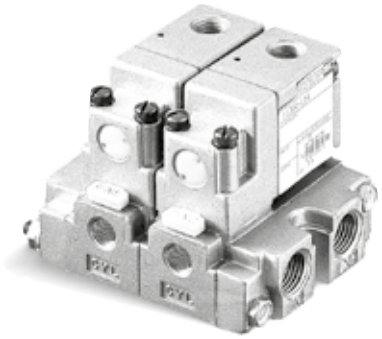
Check the warranty page 277

Series **1100**

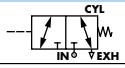
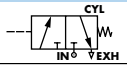
Function	Port size	Flow (Max)	Manifold mounting
3/2 NO-NC, 2/2 NO-NC	**G1/8"**	**180 Nl/min**	sub-base

OPERATIONAL BENEFITS

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



HOW TO ORDER

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

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

OPTIONS

11X6A-111
- Replace by 2 for 2-way normally closed.
- Replace by 4 for 2-way normally open.

Check the warranty page 277

MAC

Series **1100**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

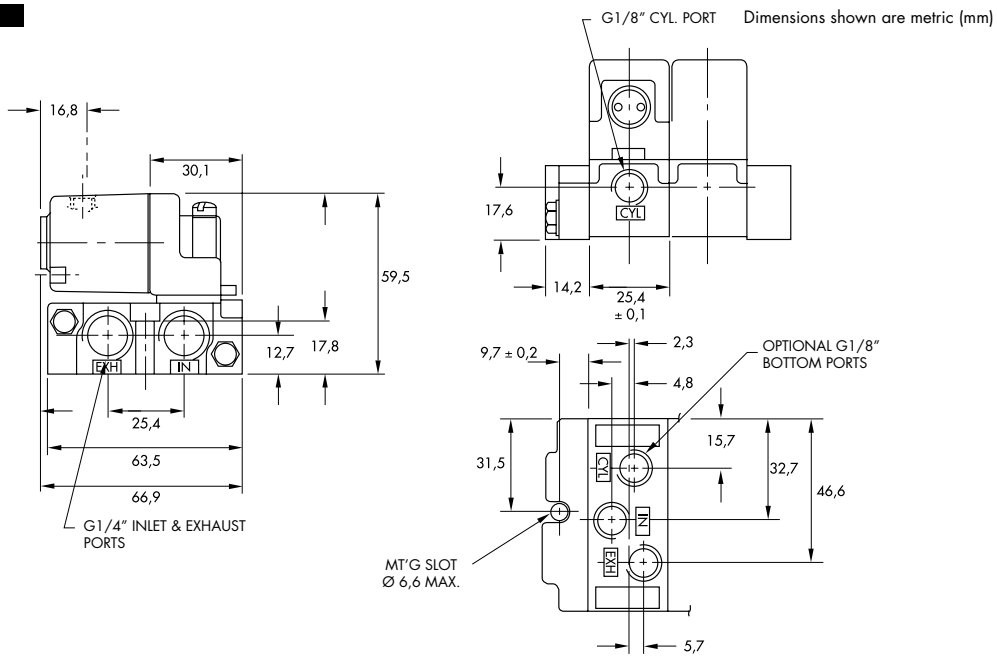
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	1.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 60°C (0°F to 140°F)
Flow (at 6 bar, ΔP=1bar) :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

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



Check the warranty page 277

MAC

Series **1100**

Function	Port size	Flow (Max)	Individual mounting
3/2 NO-NC, 2/2 NO-NC	**G1/8" - G1/4"**	**180 Nl/min**	Inline

OPERATIONAL BENEFITS

1. Short stroke with high flow.
2. Powerful return spring.

HOW TO ORDER

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

MECHANICAL OPERATOR ➤ ***XXX***

Code	Description	Code	Description	Code	Description
011	Cam roller parallel to ports 1 & 2	**023**	Lever locking pull perpendicular to ports 1 & 2	**031**	Push button
012	Cam roller perpendicular to ports 1 &2	**024**	Lever non-locking pull perpendicular to ports 1 & 2	**032**	Push button (panel mounting)
013	Lever cam perpendicular to ports 1 & 2	**025**	Lever locking push parallel to ports 1 & 2	**033**	Push button with guard
014	Lever cam parallel to ports 1 & 2	**026**	Lever non-locking push parallel to ports 1 & 2	**036**	Palm button
021	Lever locking push perpendicular to ports 1 & 2	**027**	Lever locking pull parallel to ports 1 & 2	**037**	Palm button (panel mounting)
022	Lever non-locking push perpendicular to ports 1 & 2	**028**	Lever non-locking pull parallel to ports 1 & 2	**038**	Palm button with guard

Check the warranty page 277

MAC

Series **1100**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

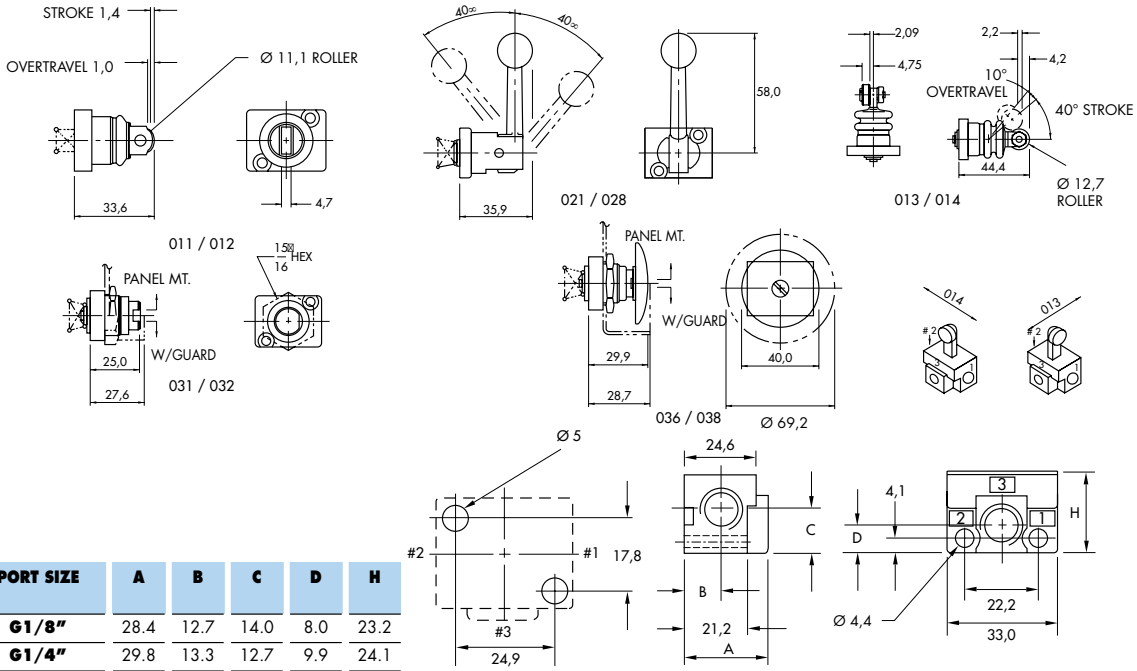
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" - G1/4" : 180 Nl/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



PORT SIZE	A	B	C	D	H
G1/8"	28.4	12.7	14.0	8.0	23.2
G1/4"	29.8	13.3	12.7	9.9	24.1

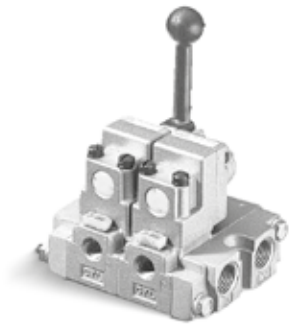
Check the warranty page 277

MAC
Series 1100

Function	Port size	Flow (Max)	Manifold mounting
3/2 NO-NC, 2/2 NO-NC	**G1/8"**	**140 Nl/min**	sub-base

OPERATIONAL BENEFITS

1. Short stroke with high flow.
2. Powerful return spring.



HOW TO ORDER

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

MECHANICAL OPERATOR ➤ ***XXX***

Code	Description	Code	Description
025 	Lever locking push parallel to ports 1 & 2	**031** 	Push button
026 	Lever non-locking push parallel to ports 1 & 2	**028** 	Lever non-locking pull parallel to ports 1 & 2
027 	Lever locking pull parallel to ports 1 & 2		

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

Check the warranty page 277

MAC

Series **1100**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

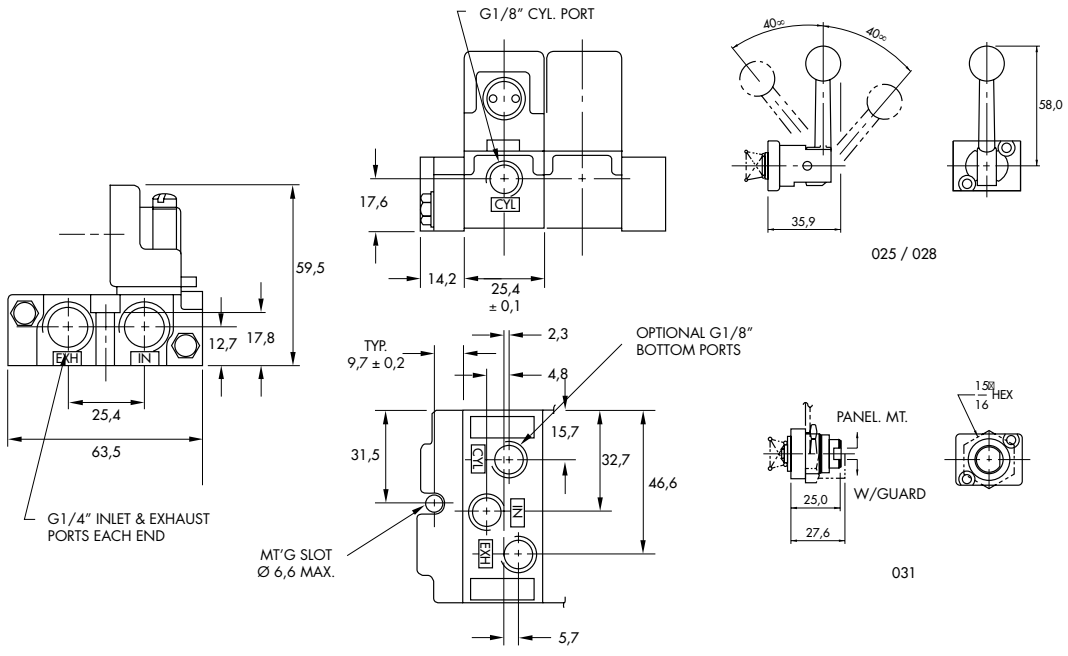
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/8" : 140 Nl/min

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

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)



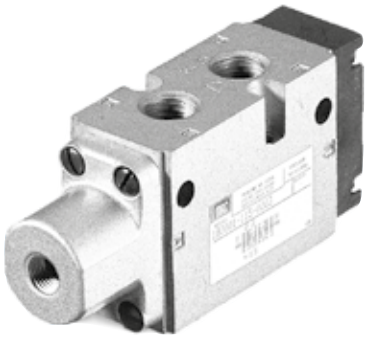
Check the warranty page 277

Series **1800**

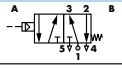
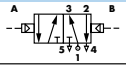
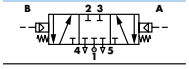
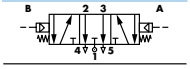
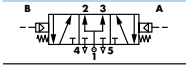
Function	Port size	Flow (Max)	Individual mounting
5/2 - 5/3	**G1/4"**	**1400 Nl/min**	Inline

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
G1/4"	180001-115-0003	180003-115-0003	180304-515-0304	180304-615-0304	180304-815-0304

Air pilot port : G1/8".

Options : Side pilot port : replace code 0003 by 0010 (2 positions valves only).

Check the warranty page 277

Series **1800**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

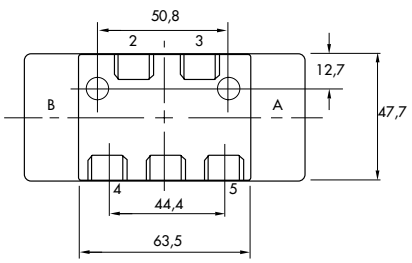
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 13.3 bar
Air signal pressure :	Single operator and 3 positions : 1.3 to 10 bar Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" - G3/8" : 1400 Nl/min

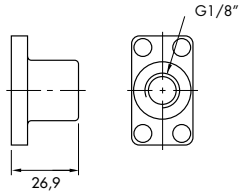
Spare parts : • Remote air operator (2 positions) : 180003. • Remote air operator (3 positions) : 180304.

Options : • NPTF threads. • G3/8" ports (ports 1, 2 &3 - MOD. 0358 required).

DIMENSIONS

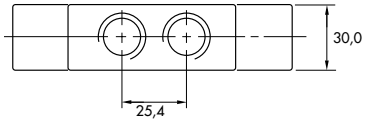
Dimensions shown are metric (mm)

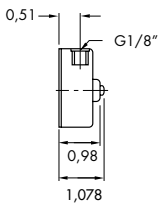




0003
OPER.

0304
OPER.





0010
OPER.

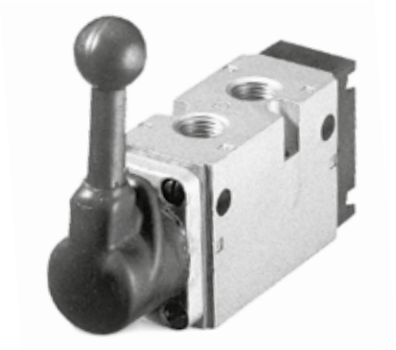
Check the warranty page 277

MAC
Series 1800

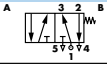
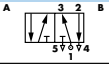
Function	Port size	Flow (Max)	Individual mounting
5/2	**G1/4"**	**1400 Nl/min**	Inline

OPERATIONAL BENEFITS

1. Short stroke with high flow.
2. Powerful return force.
3. Bonded spool with minimum friction, shifting in a glass-like finished bore.
4. Wiping effect eliminates sticking.
5. Long service life.



HOW TO ORDER

Port size	Single operator	Double operator
		
G1/4"	180001-115-*XXXX*	18*XXXX*-115-*XXXX*

MECHANICAL OPERATOR ➤ *XXXX*

Code	Description	Code	Description	Code	Description
0111	Cam roller parallel to ports 2 & 3	**0024**	Lever non-locking pull perpendicular to body	**0033**	Push button with guard
0112	Cam roller perpendicular to ports 2 & 3	**0025**	Lever locking push parallel to body	**0034**	Push Pull
0013	Lever cam perpendicular to ports 2 & 3	**0026**	Lever non-locking push parallel to body	**0035**	Push Pull (panel mounting)
0014	Lever cam parallel to ports 2 & 3	**0027**	Lever locking pull parallel to body	**0036**	Palm button
0021	Lever locking push perpendicular to body	**0028**	Lever non-locking pull parallel to body	**0037**	Palm button (panel mounting)
0022	Lever non-locking push perpendicular to body	**0031**	Push button	**0038**	Palm button with guard
0023	Lever locking pull perpendicular to body	**0032**	Push button (panel mounting)	**0039**	Push Pull palm button

OPTIONS

002X — Replace 0 by 2 for lever operator with boot (see photo)

Check the warranty page 277

MAC

Series **1800**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

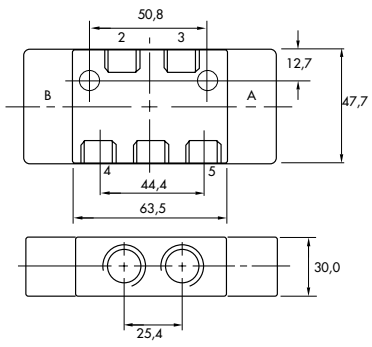
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 13.3 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G1/4" : 1400 Nl/min

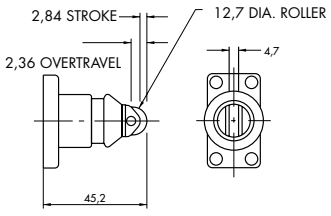
Spare parts : • Operator : 18XXXX (see codification).

Options : • NPTF threads. • G3/8" ports (ports 1,2 & 3 - MOD. 0358 required).

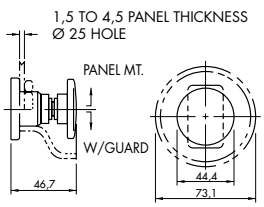
DIMENSIONS

Dimensions shown are metric (mm)

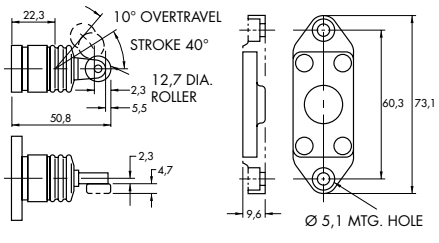




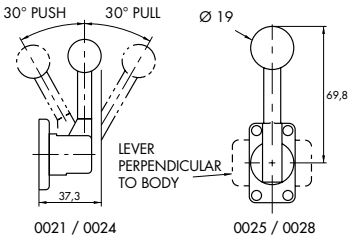
0111 / 0112



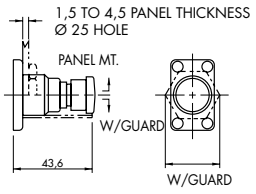
0036 / 0039



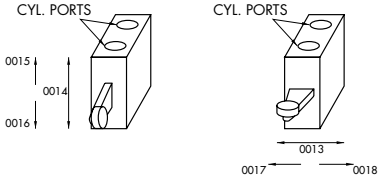
0013 / 0014 0001



0021 / 0024 0025 / 0028



0031 / 0035



Check the warranty page 277

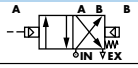
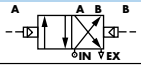
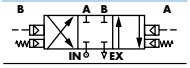
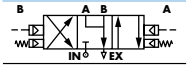
Series **2700**

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	**G3/4" - G1" - G1 1/4" - G1 1/2"**	**15900 Nl/min**	sub-base

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center
					
Valve less base	Internal	2701G-3	-	-	-
Sub-base G3/4"		2721G-3	-	-	-
Sub-base G1"		2731G-3	-	-	-
Sub-base G1 1/4"		2751G-3	-	-	-
Sub-base G1 1/2"		2761G-3	-	-	-
Valve less base	External	2701G-4	2703G-4	2707G-4	2708G-4
Sub-base G3/4"		2721G-4	2723G-4	2727G-4	2728G-4
Sub-base G1"		2731G-4	2733G-4	2737G-4	2738G-4
Sub-base G1 1/4"		2751G-4	2753G-4	2757G-4	2758G-4
Sub-base G1 1/2"		2761G-4	2763G-4	2767G-4	2768G-4

Note : Double operators are external pilot only
Single operators are either internal or external pilot.

Check the warranty page 277

MAC

Series **2700**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

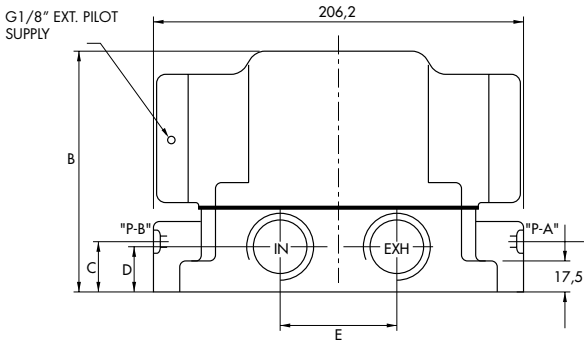
Fluid :	Compressed air, vacuum, inert gases
Pressure range :	Vacuum to 10 bar
Air signal pressure :	Single operator and 3 positions : 1.7 to 10 bar ≥ main valve pressure Double operator : 0.7 to 10 bar
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)
Filtration :	40 µ
Temperature range :	-18°C to 50°C (0°F to 120°F)
Flow (at 6 bar, ΔP=1bar) :	G3/4" : 11500 Nl/min, G1" : 13400 Nl/min, G1 1/4" : 15400 Nl/min, G1 1/2" : 15900 Nl/min

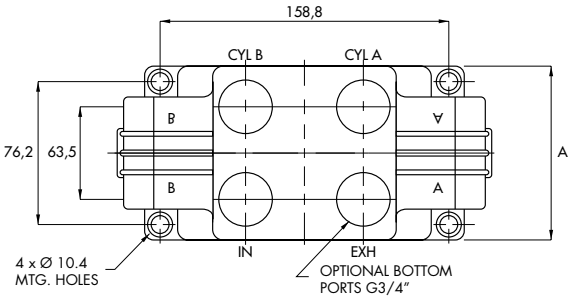
Spare parts : • Remote air end plate : R-00016B. • Pressure seal between valve and base : 16083. • Mounting screw valve to base (x4) : 32214.

Options : • NPTF threads.

DIMENSIONS

Dimensions shown are metric (mm)





PORT SIZE	A	B	C	D	E
G3/4"	95.3	132.3	28.4	25.4	63.5
G1"					
G1 1/4"	114.3	148.3	23.9	30.2	76.2
G1 1/2"					69.9

Check the warranty page 277

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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