

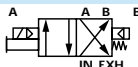
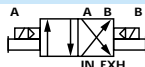
Function	Port size	Flow (Max)	Individual mounting
4/2	1/8" - 1/4"	0.7 C _v	inline

OPERATIONAL BENEFITS

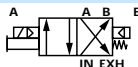
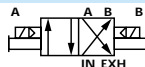
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return force thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
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
			
1/8" NPTF	Internal	711C-11-PI- XXYZ	721C-11-PI- XXYZ
1/4" NPTF	Internal	711C-12-PI- XXYZ	721C-12-PI- XXYZ
1/8" NPTF	External	711C-11-PE- XXYZ	721C-11-PE- XXYZ
1/4" NPTF	External	711C-12-PE- XXYZ	721C-12-PE- XXYZ

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
1/8" NPTF	Internal	712C-11-PI- XXYZ	722C-11-PI- XXYZ
1/4" NPTF	Internal	712C-12-PI- XXYZ	722C-12-PI- XXYZ
1/8" NPTF	External	712C-11-PE- XXYZ	722C-11-PE- XXYZ
1/4" NPTF	External	712C-12-PE- XXYZ	722C-12-PE- XXYZ

SOLENOID OPERATOR ►

XX Y ZZ		
XX	Voltage	Y Manual operator
11	120/60, 110/50	1 Non-locking
12	240/60, 220/50	2 Locking
22	24/50, 24/60	
59	24 VDC (2.5 W)	
87	24 VDC (17.1 W)	
61	24 VDC (8.5 W)	
		ZZ Electrical connection
		JB Rectangular connector
		JD Rectangular connector with light
		JA Square connector
		JC Square connector with light
		BA Flying leads (18")
		CA Conduit 1/2" NPS

OPTIONS

7XXC-XX-PX-**XXYZ**

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator : 20 to 150 PSI double operator : 10 to 150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator : 20 to 150 PSI Double operator : 10 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.6 C _v), 1/4" : (0.7 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 6.4 ms	De-energize : 8.5ms
	120/60	Energize : 4-10 ms	De-energize : 7-13 ms

Spare parts :

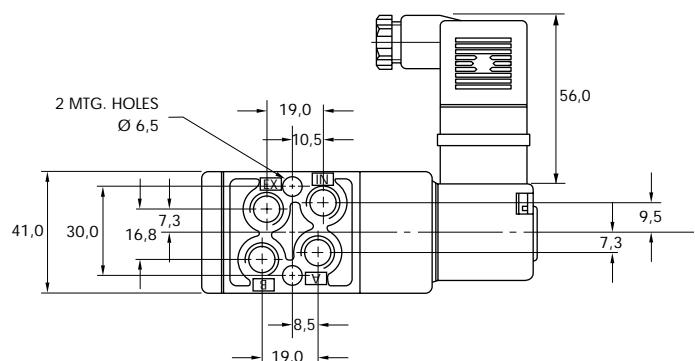
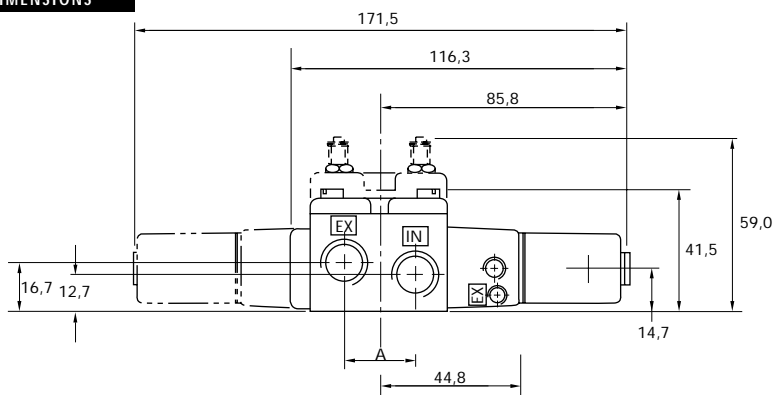
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07002.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



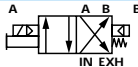
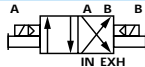
Port size	A
1/8" NPTF	21.0
1/4" NPTF	24.0

Function	Port size	Flow (Max)	Manifold mounting
4/2	1/8" - 1/4"	0.8 C _v	stacking

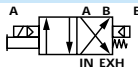
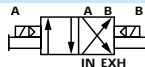
OPERATIONAL BENEFITS

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
			
1/8" NPTF	Internal	713C-11-PI- XXYZZ	723C-11-PI- XXYZZ
1/4" NPTF		713C-12-PI- XXYZZ	723C-12-PI- XXYZZ

HOW TO ORDER VALVE WITH FLOW CONTROLS

Port size	Pilot air	Single operator	Double operator
			
1/8" NPTF	Internal	714C-11-PI- XXYZZ	724C-11-PI- XXYZZ
1/4" NPTF		714C-12-PI- XXYZZ	724C-12-PI- XXYZZ

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/50, 24/60			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)			CA	Conduit 1/2" NPS

End plate kit required (Port size 1/4") : M-07001-01-01 (internal pilot).
M-07001-02-01 (external pilot).

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator : 20 to 150 PSI double operator : 10 to 150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator : 20 to 150 PSI Double operator : 10 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.7 C _v), 1/4" : (0.8 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 6.4 ms	De-energize : 8.5 ms
	120/60	Energize : 4-10 ms	De-energize : 7-13 ms

Spare parts :

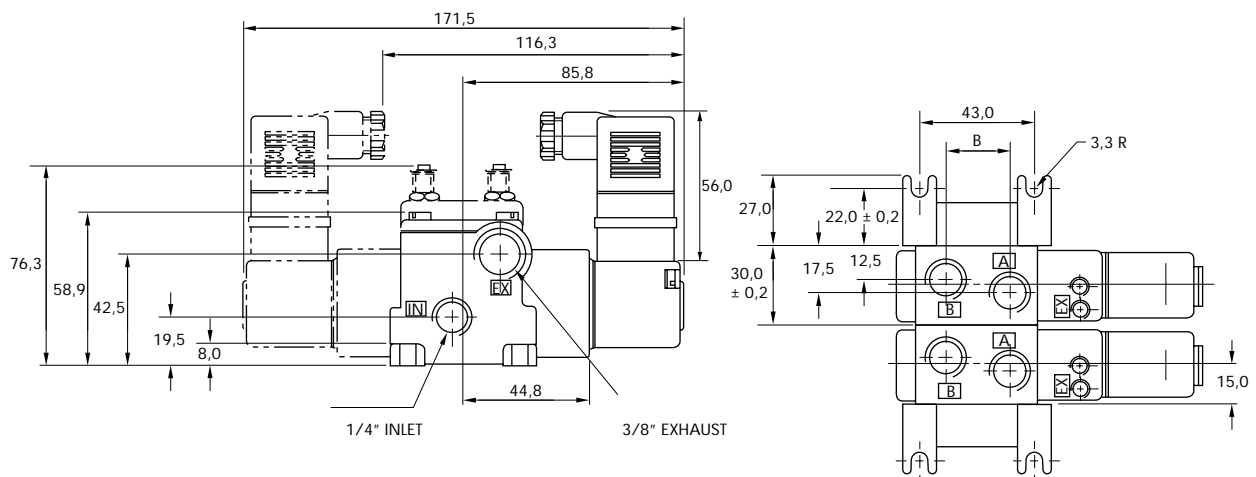
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PID-XXYZZ, including mounting screws 35214 and seal 16363.
- Valve cover plate with integral flow controls : N-07004. • Inlet & exhaust isolator : N-07005. • Inlet isolator : N-07006.
- Exhaust isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



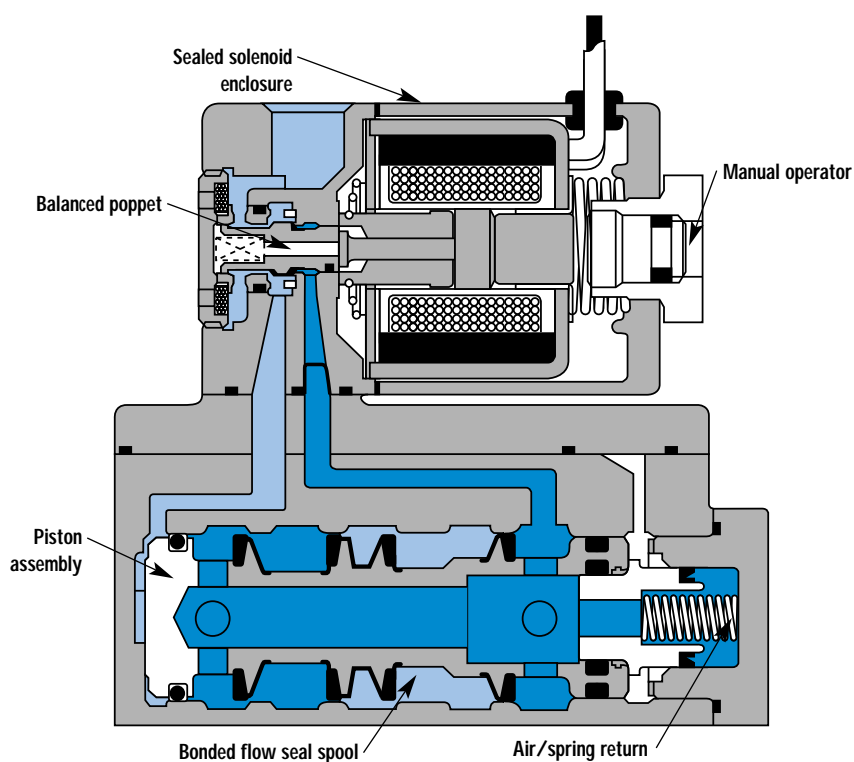
Port size	B
1/8" NPTF	21.0
1/4" NPTF	24.0

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.



VALVE CONFIGURATIONS AVAILABLE

The 900 Series is a small Inline 4-way valve with a Cv of up to 1.4. This series provides fast response, long life and high flow not commonly found in this size valve.

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

SERIES FEATURES-REMOTE AIR PILOT OPERATED VALVES

The remote air versions feature:

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

SPECIAL APPLICATIONS:

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

VACUUM APPLICATIONS (remote Air Models Only)-Connect the vacuum source to the Exhaust port and leave the Inlet open to atmosphere. Also specify MOD 158 which provides a heavy duty spring in lieu of air/spring.

SELECTOR APPLICATIONS-When using as a selector valve, connect the higher pressure to the Inlet port and the lower pressure to the Exhaust port. On solenoid models, the Inlet pressure must be a minimum of 25 PSI on singles or 10 PSI on doubles.

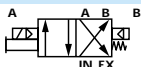
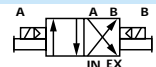
Function	Port size	Flow (Max)	Individual mounting
4/2	1/8" - 1/4"	1.2 C _v	inline

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
		
1/8" NPTF	911B-PM- XXYZZ	921B-PM- XXYZZ
1/4" NPTF	912B-PM- XXYZZ	922B-PM- XXYZZ

SOLENOID OPERATOR ►

XX Y ZZ*

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/50, 24/60		JA Square connector
59 24 VDC (2.5 W)		JC Square connector with light
87 24 VDC (17.1 W)		BA Flying leads (18")
61 24 VDC (8.5 W)		CA Conduit 1/2" NPS

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 25 to 150 PSI Double operator : 10 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.8 C _V), 1/4" : (1.2 C _V)		
Leak rate :	50 cm³/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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-10 ms	De-energize : 8-15 ms

Spare parts :

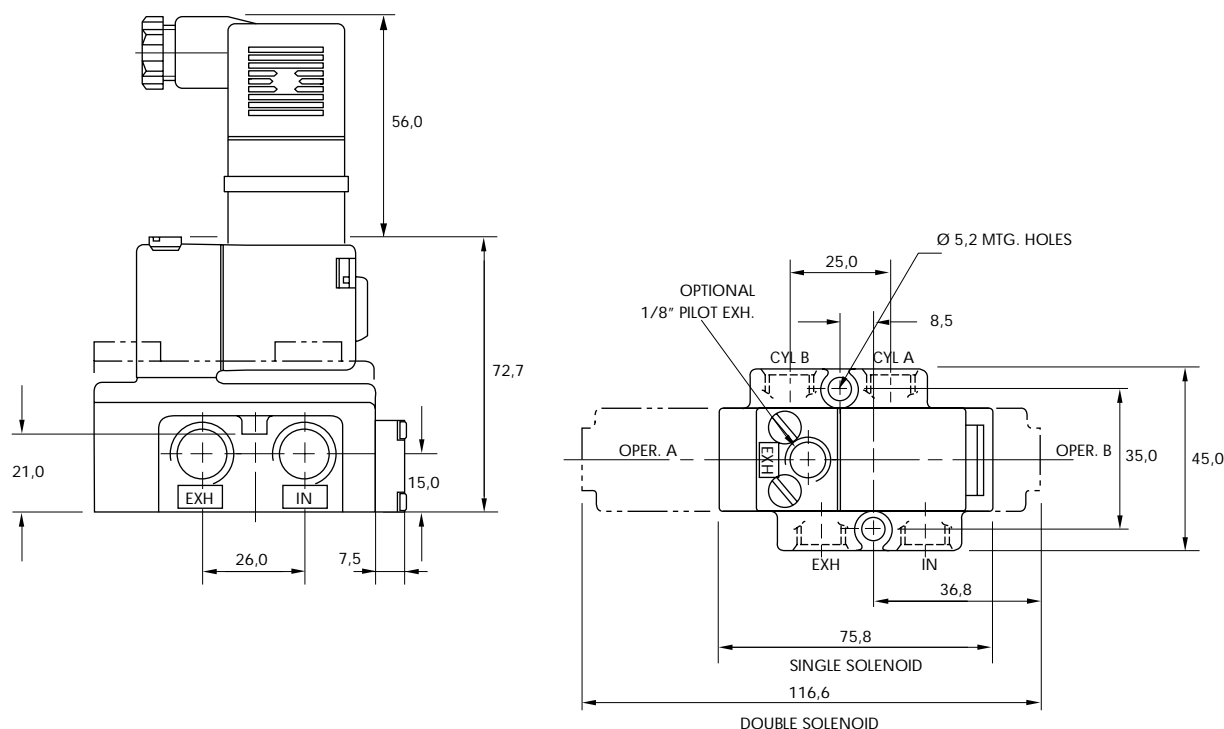
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw pilot to main valve : 35219.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



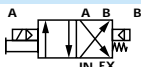
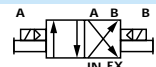
Function	Port size	Flow (Max)	Manifold mounting
4/2	1/8" - 1/4" - 3/8"	1.4 C _v	stacking

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
		
1/8" NPTF	913B-PM- XXYZZ	923B-PM- XXYZZ
1/4" NPTF	914B-PM- XXYZZ	924B-PM- XXYZZ
3/8" NPTF	919B-PM- XXYZZ	N/A

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/50, 24/60		BA Flying leads (18")
59 24 VDC (2.5 W)		MA Common conduit 1" NPS
87 24 VDC (17.1 W)		RA Conduit 3/8" NPS
61 24 VDC (8.5 W)		

End plate kit required (Port size : 3/8") : M-09001-01.
 "MA" option also requires end plate kit : M-01002-01.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Single operator : 25 to 150 PSI Double operator : 10 to 150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (1.2 C _V), 1/4" : (1.4 C _V), 3/8" : (1.4 C _V)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-10 ms	De-energize : 8-15 ms

Spare parts :

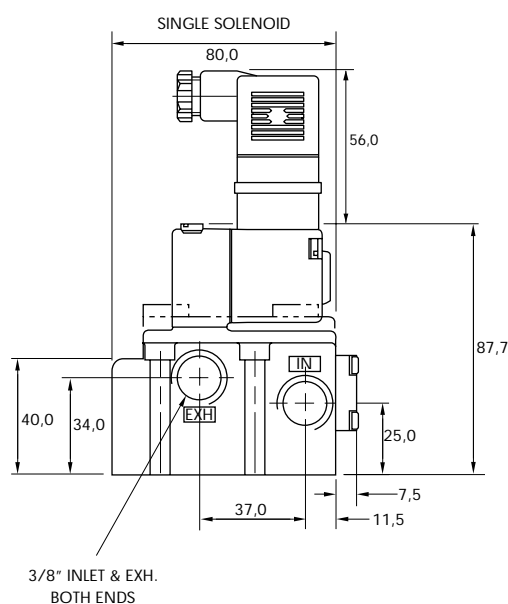
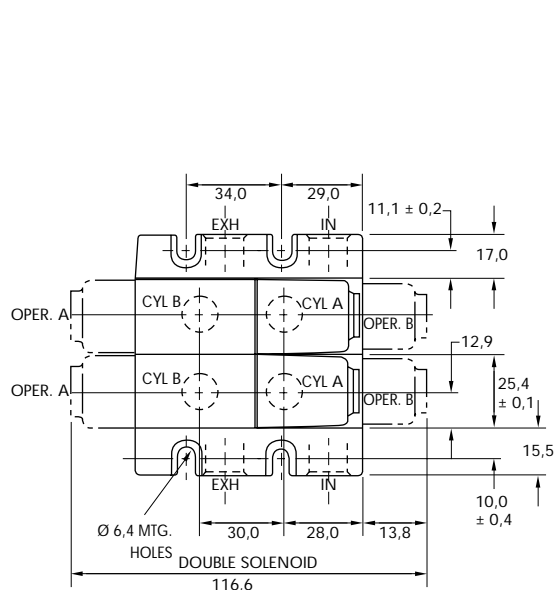
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16367. • Mounting screw pilot to main valve : 35208.
- Pressure seal between valves : 16358. • Tie-rod (x2) : 19615. • Inlet & exhaust isolator : N-09002. • Inlet isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



Individual mounting

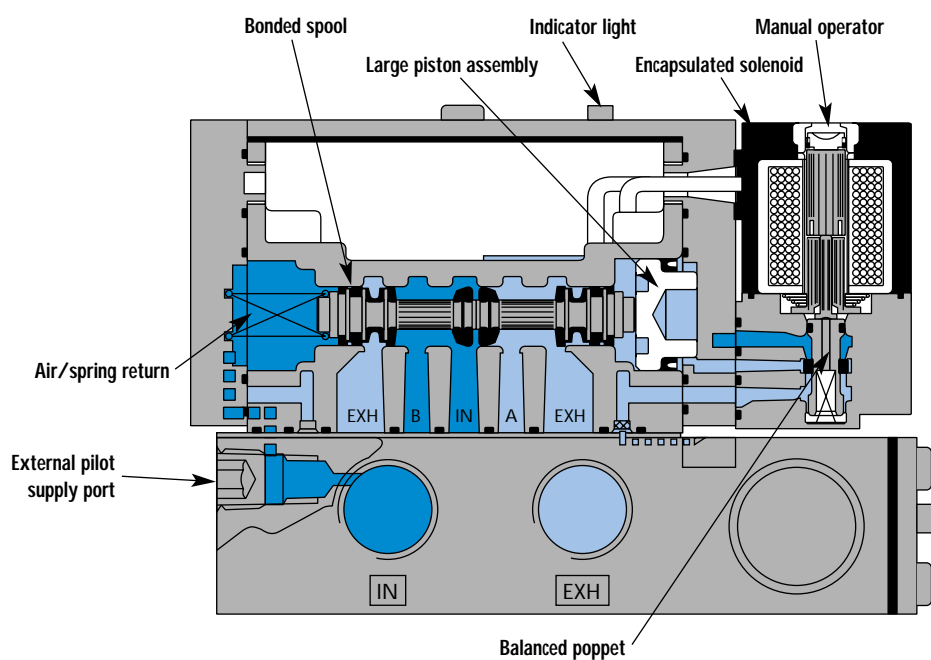
sub-base
non "plug-in"

sub-base
"plug-in"

Manifold mounting

sub-base
non "plug-in"

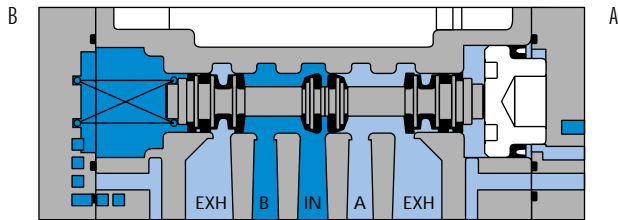
sub-base
"plug-in"



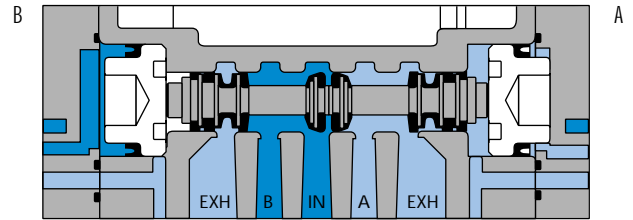
SERIES FEATURES

- 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.

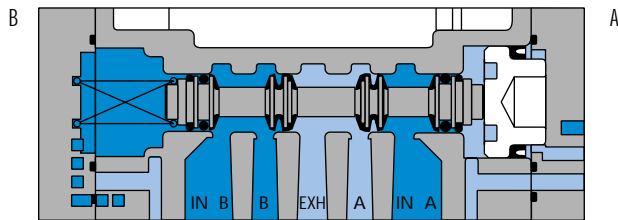
SPOOL CONFIGURATIONS



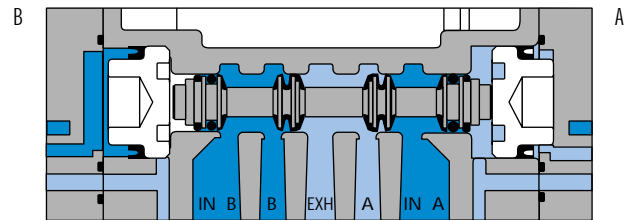
SINGLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



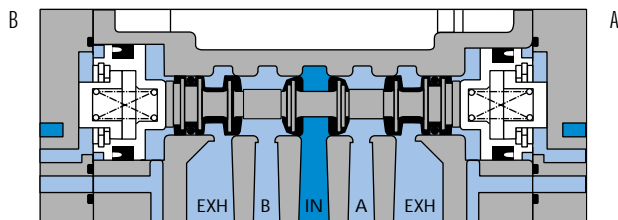
DOUBLE OPERATOR
SINGLE INLET - DUAL EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



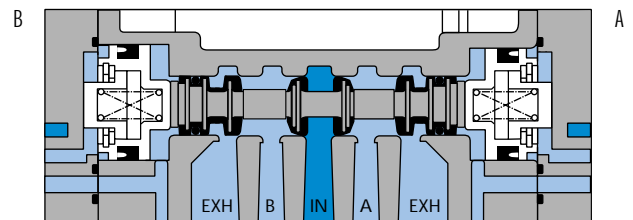
SINGLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



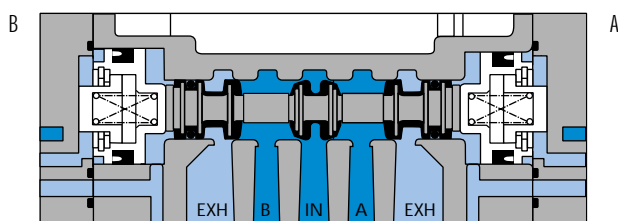
DOUBLE OPERATOR
DUAL INLET - SINGLE EXHAUST
SHOWN WITH "B" OPERATOR ENERGIZED



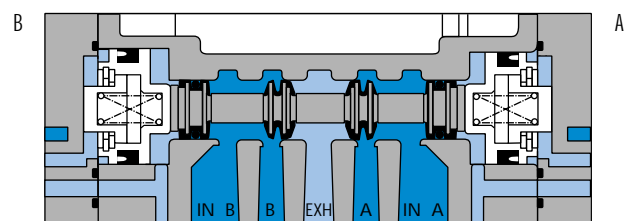
3 POSITION CLOSED CENTER



3 POSITION OPEN CENTER



3 POSITION SINGLE PRESSURE
PRESSURE CENTER

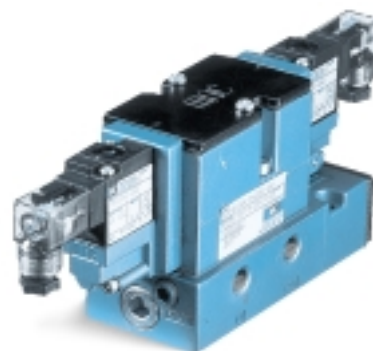


3 POSITION DUAL PRESSURE
PRESSURE CENTER

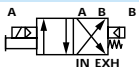
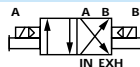
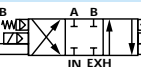
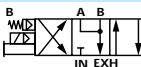

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	1/8" - 1/4" - 3/8"	1.35 C _v	sub-base non "plug-in"

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-Dxxx-xxx	82A-BB-000-TM-Dxxx-xxx	82A-EB-000-TM-Dxxx-xxx	82A-FB-000-TM-Dxxx-xxx	82A-GB-000-TM-Dxxx-xxx
sub-base	Internal	82A-AB-AAA-TM-Dxxx-xxx	82A-BB-AAA-TM-Dxxx-xxx	82A-EB-AAA-TM-Dxxx-xxx	82A-FB-AAA-TM-Dxxx-xxx	82A-GB-AAA-TM-Dxxx-xxx
1/8" NPTF	External	82A-AB-AAD-TM-Dxxx-xxx	82A-BB-AAD-TM-Dxxx-xxx	82A-EB-AAD-TM-Dxxx-xxx	82A-FB-AAD-TM-Dxxx-xxx	82A-GB-AAD-TM-Dxxx-xxx
sub-base	Internal	82A-AB-BAA-TM-Dxxx-xxx	82A-BB-BAA-TM-Dxxx-xxx	82A-EB-BAA-TM-Dxxx-xxx	82A-FB-BAA-TM-Dxxx-xxx	82A-GB-BAA-TM-Dxxx-xxx
1/4" NPTF	External	82A-AB-BAD-TM-Dxxx-xxx	82A-BB-BAD-TM-Dxxx-xxx	82A-EB-BAD-TM-Dxxx-xxx	82A-FB-BAD-TM-Dxxx-xxx	82A-GB-BAD-TM-Dxxx-xxx
sub-base	Internal	82A-AB-CAA-TM-Dxxx-xxx	82A-BB-CAA-TM-Dxxx-xxx	82A-EB-CAA-TM-Dxxx-xxx	82A-FB-CAA-TM-Dxxx-xxx	82A-GB-CAA-TM-Dxxx-xxx
3/8" NPTF	External	82A-AB-CAD-TM-Dxxx-xxx	82A-BB-CAD-TM-Dxxx-xxx	82A-EB-CAD-TM-Dxxx-xxx	82A-FB-CAD-TM-Dxxx-xxx	82A-GB-CAD-TM-Dxxx-xxx

SOLENOID OPERATOR ►

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

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120/60, 110/50	A	18" (Flying leads)	1	Non-locking	KA	Square connector
AB	240/60, 220/50	J	Connector	2	Locking	KD	Square connector with light
AC	24/60, 24/50					JB	Rectangular connector
FB	24 VDC (1.8 W)					JD	Rectangular connector with light
DA	24 VDC (5.4 W)					BA	Flying leads
DF	24 VDC (12.7 W)						

Note : KD connector shown in photo.

OPTIONS

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

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

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

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

82A-XX-BAA-TM-Dxxx-xxx

- Replace A by B for bottom ports (1/8" or 1/4" only)
- Replace A by C for side and bottom ports (1/8" or 1/4" only)

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.9 C _v), 1/4" : (1.3 C _v), 3/8" : (1.35 C _v)		
Leak rate :	100 cm ³ /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 VDC (5.4 W)	Energize : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

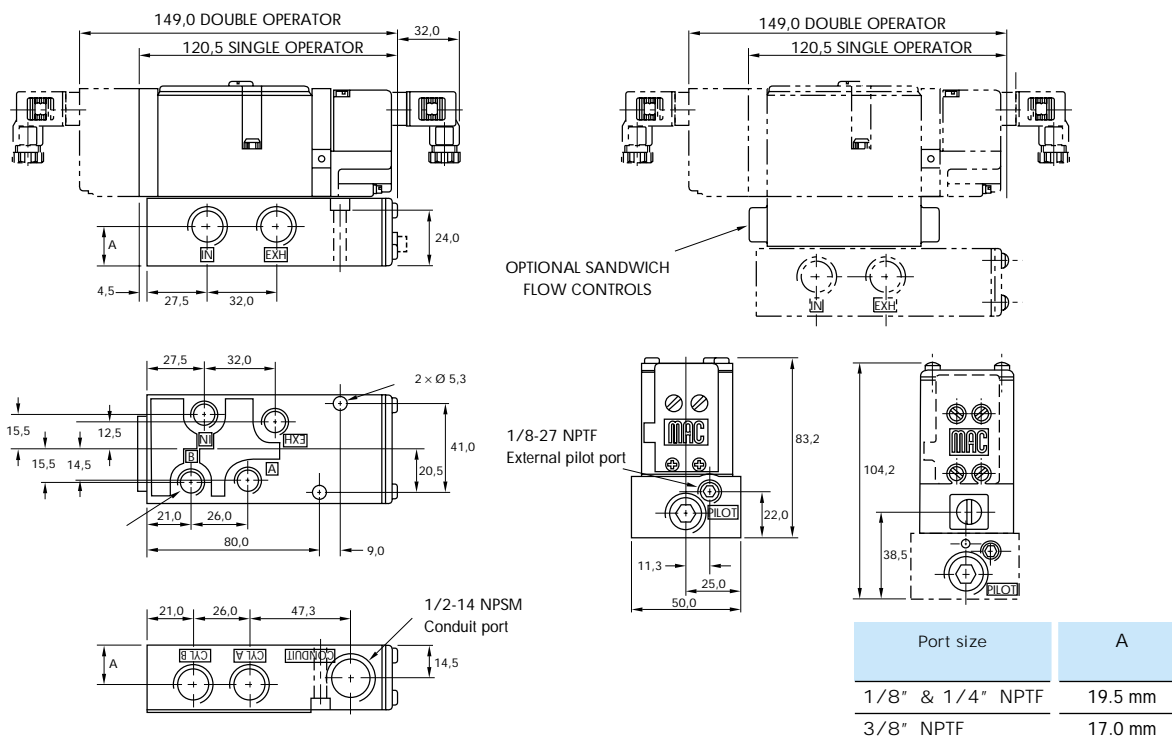
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- BSPP threads. • Flow controls (Part N°: FC82A-BA) • Explosion-proof model.

DIMENSIONS

Dimensions shown are metric (mm)



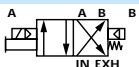
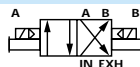
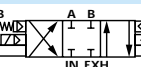

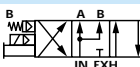
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	1/8" - 1/4" - 3/8"	1.35 C _v	sub-base "plug-in"

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-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
sub-base	Internal	82A-AA-AAA-TM-DxxP-xDA	82A-BA-AAA-TM-DxxP-xDA	82A-EA-AAA-TM-DxxP-xDA	82A-FA-AAA-TM-DxxP-xDA	82A-GA-AAA-TM-DxxP-xDA
1/8" NPTF	External	82A-AA-AAD-TM-DxxP-xDA	82A-BA-AAD-TM-DxxP-xDA	82A-EA-AAD-TM-DxxP-xDA	82A-FA-AAD-TM-DxxP-xDA	82A-GA-AAD-TM-DxxP-xDA
sub-base	Internal	82A-AA-BAA-TM-DxxP-xDA	82A-BA-BAA-TM-DxxP-xDA	82A-EA-BAA-TM-DxxP-xDA	82A-FA-BAA-TM-DxxP-xDA	82A-GA-BAA-TM-DxxP-xDA
1/4" NPTF	External	82A-AA-BAD-TM-DxxP-xDA	82A-BA-BAD-TM-DxxP-xDA	82A-EA-BAD-TM-DxxP-xDA	82A-FA-BAD-TM-DxxP-xDA	82A-GA-BAD-TM-DxxP-xDA
sub-base	Internal	82A-AA-CAA-TM-DxxP-xDA	82A-BA-CAA-TM-DxxP-xDA	82A-EA-CAA-TM-DxxP-xDA	82A-FA-CAA-TM-DxxP-xDA	82A-GA-CAA-TM-DxxP-xDA
3/8" NPTF	External	82A-AA-CAD-TM-DxxP-xDA	82A-BA-CAD-TM-DxxP-xDA	82A-EA-CAD-TM-DxxP-xDA	82A-FA-CAD-TM-DxxP-xDA	82A-GA-CAD-TM-DxxP-xDA

SOLENOID OPERATOR ►

D xx P- x DA

XX	Voltage	X	Manual operator
AA	120/60, 110/50	1	Non-locking
AB	240/60, 220/50	2	Locking
AC	24/60, 24/50		
FB	24 VDC (1.8 W)		
DA	24 VDC (5.4 W)		
DF	24 VDC (12.7 W)		

OPTIONS

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

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

82A-AA-BAA-TM-DxxP-xDA

- Replace A by B for bottom ports (1/8" or 1/4" only)
- Replace A by C for side and bottom ports (1/8" or 1/4" only)

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/8" : (0.9 C _v), 1/4" (1.3 C _v), 3/8" : (1.35 C _v)		
Leak rate :	100 cm ³ /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 VDC (5.4 W)	Energize : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

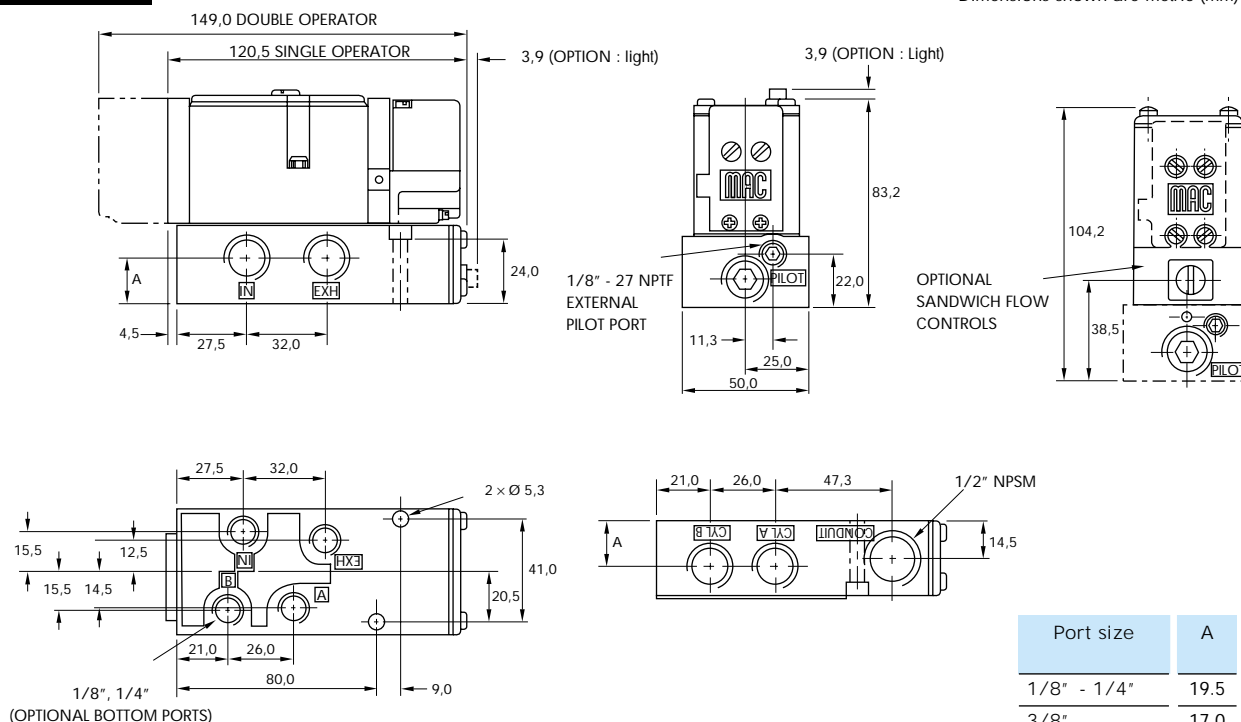
- Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013. • Seal between solenoid and pilot body : 16402.
- Pilot valve : TM-DXXP-XDA, including seal 16447. • Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- BSPP threads. • Flow controls (Part N°. FC82A-AA) • Explosion-proof model. • Lights in base.

DIMENSIONS

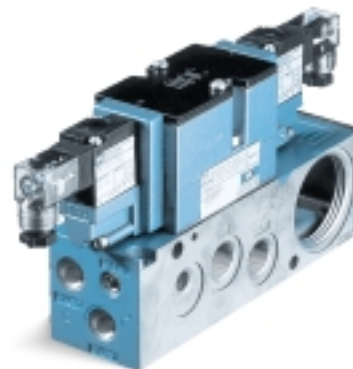
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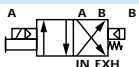
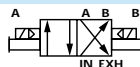
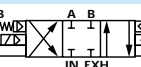
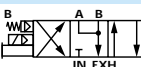
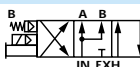
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	1/4" - 3/8"	1.35 C _v	sub-base non "plug-in"

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-Dxxx-xxx	82A-BB-000-TM-Dxxx-xxx	82A-EB-000-TM-Dxxx-xxx	82A-FB-000-TM-Dxxx-xxx	82A-GB-000-TM-Dxxx-xxx
sub-base	Internal	82A-AB-BKA-TM-Dxxx-xxx	82A-BB-BKA-TM-Dxxx-xxx	82A-EB-BKA-TM-Dxxx-xxx	82A-FB-BKA-TM-Dxxx-xxx	82A-GB-BKA-TM-Dxxx-xxx
1/4" NPTF	External	82A-AB-BKD-TM-Dxxx-xxx	82A-BB-BKD-TM-Dxxx-xxx	82A-EB-BKD-TM-Dxxx-xxx	82A-FB-BKD-TM-Dxxx-xxx	82A-GB-BKD-TM-Dxxx-xxx
sub-base	Internal	82A-AB-CKA-TM-Dxxx-xxx	82A-BB-CKA-TM-Dxxx-xxx	82A-EB-CKA-TM-Dxxx-xxx	82A-FB-CKA-TM-Dxxx-xxx	82A-GB-CKA-TM-Dxxx-xxx
3/8" NPTF	External	82A-AB-CKD-TM-Dxxx-xxx	82A-BB-CKD-TM-Dxxx-xxx	82A-EB-CKD-TM-Dxxx-xxx	82A-FB-CKD-TM-Dxxx-xxx	82A-GB-CKD-TM-Dxxx-xxx

SOLENOID OPERATOR ►

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

xx Voltage	x Wire length	x Manual operator	xx Electrical connection
AA 120/60, 110/50	A 18" (Flying leads)	1 Non-locking	KA Square connector
AB 240/60, 220/50	J Connector	2 Locking	KD Square connector with light
AC 24/60, 24/50			JB Rectangular connector
FB 24 VDC (1.8 W)			JD Rectangular connector with light
DA 24 VDC (5.4 W)			BA Flying leads
DF 24 VDC (12.7 W)			

Note : KD connector shown in photo.

OPTIONS

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

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

82A-xx-BKA-TM-Dxxx-xxx

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C _v), 3/8" : (1.35 C _v)		
Leak rate :	100 cm ³ /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 VDC (5.4 W)	Energize : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

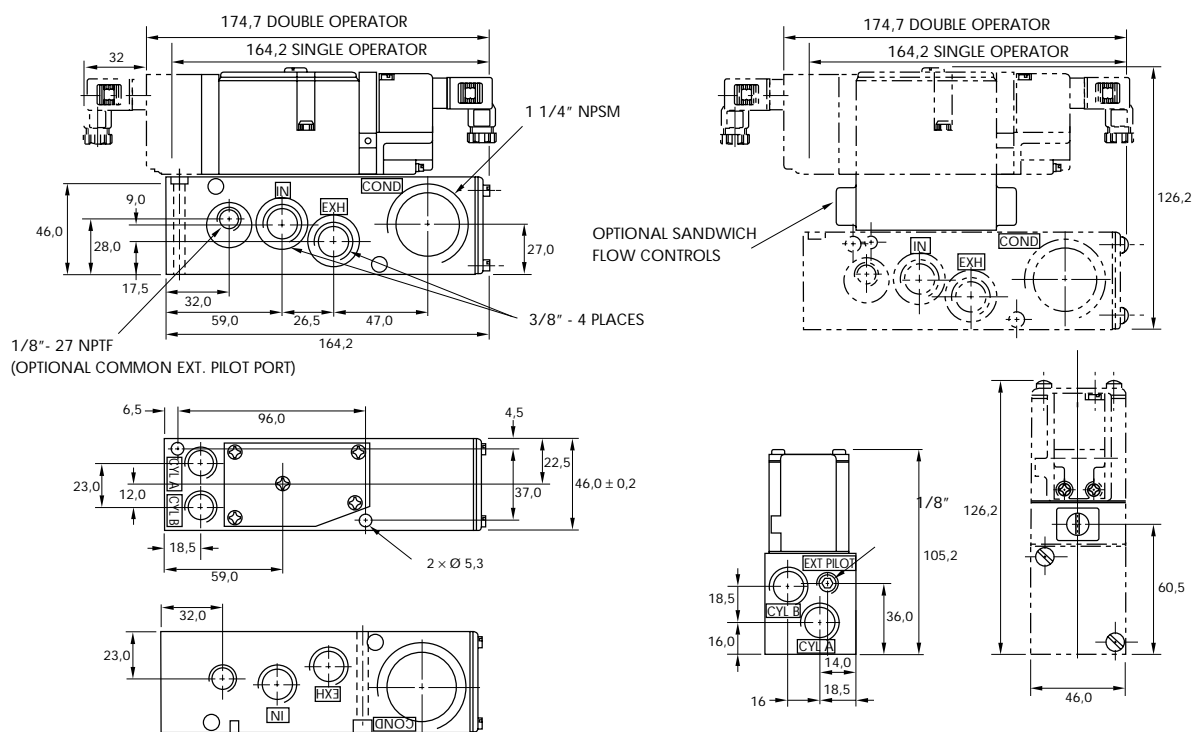
- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXX-XXX, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- BSPP threads. • Flow controls (Part N°. FC82A-BA) • Explosion-proof model.

DIMENSIONS

Dimensions shown are metric (mm)

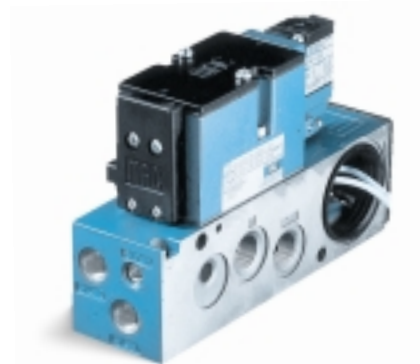


Consult "Precautions" before use, installation or service of MAC Valves.

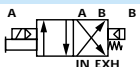
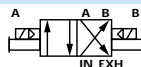
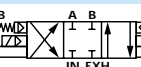
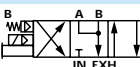
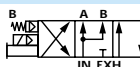
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	1/4" - 3/8"	1.35 C _v	sub-base "plug-in"

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-DxxP-xDA	82A-BA-000-TM-DxxP-xDA	82A-EA-000-TM-DxxP-xDA	82A-FA-000-TM-DxxP-xDA	82A-GA-000-TM-DxxP-xDA
sub-base	Internal	82A-AA-BKA-TM-DxxP-xDA	82A-BA-BKA-TM-DxxP-xDA	82A-EA-BKA-TM-DxxP-xDA	82A-FA-BKA-TM-DxxP-xDA	82A-GA-BKA-TM-DxxP-xDA
1/4" NPTF	External	82A-AA-BKD-TM-DxxP-xDA	82A-BA-BKD-TM-DxxP-xDA	82A-EA-BKD-TM-DxxP-xDA	82A-FA-BKD-TM-DxxP-xDA	82A-GA-BKD-TM-DxxP-xDA
sub-base	Internal	82A-AA-CKA-TM-DxxP-xDA	82A-BA-CKA-TM-DxxP-xDA	82A-EA-CKA-TM-DxxP-xDA	82A-FA-CKA-TM-DxxP-xDA	82A-GA-CKA-TM-DxxP-xDA
3/8" NPTF	External	82A-AA-CKD-TM-DxxP-xDA	82A-BA-CKD-TM-DxxP-xDA	82A-EA-CKD-TM-DxxP-xDA	82A-FA-CKD-TM-DxxP-xDA	82A-GA-CKD-TM-DxxP-xDA

SOLENOID OPERATOR ►

D xx P- x DA

XX	Voltage
AA	120/60, 110/50
AB	240/60, 220/50
AC	24/60, 24/50
FB	24 VDC (1.8 W)
DA	24 VDC (5.4 W)
DF	24 VDC (12.7 W)

x	Manual operator
1	Non-locking
2	Locking

OPTIONS

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

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

82A-XX-BKA-TM-DxxP-xDA

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (1.3 C _v), 3/8" : (1.35 C _v)		
Leak rate :	100 cm ³ /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 VDC (5.4 W)	Energize : 9 ms	De-energize : 6 ms
	120/60	Energize : 5-12 ms	De-energize : 6-13 ms

Spare parts :

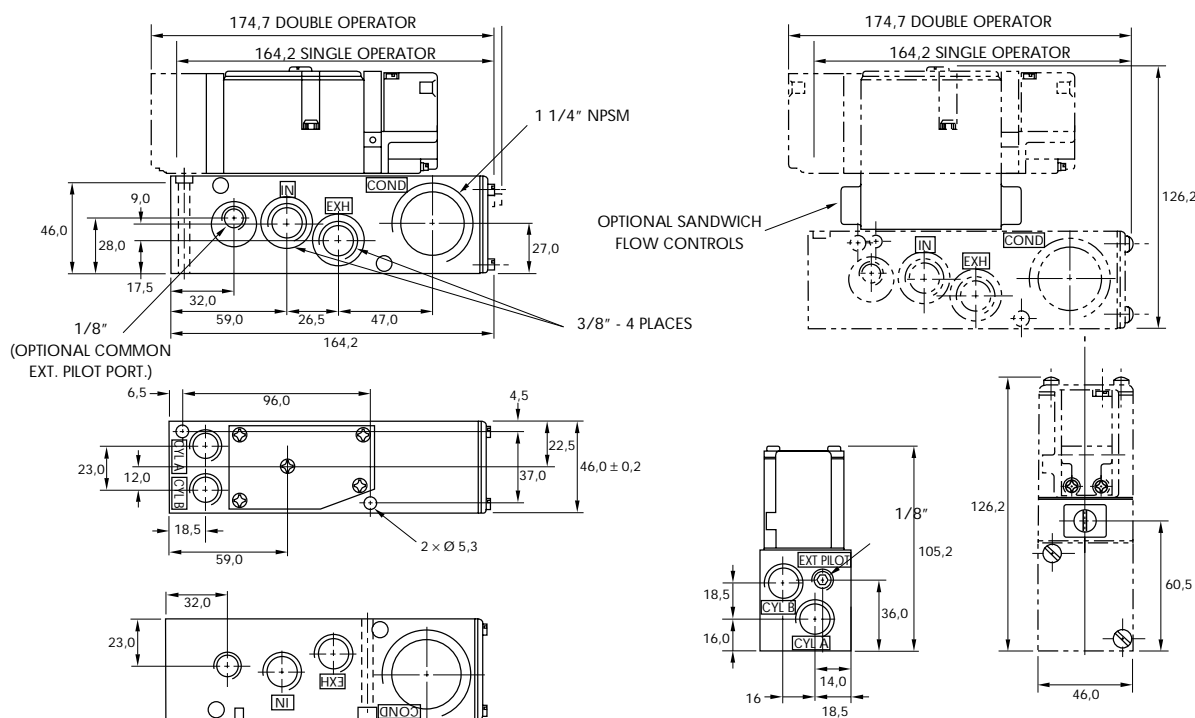
- Solenoid operator (power ≥ 5.4 W) : DXXP-XDA, including mounting screws 35013.
- Seal between solenoid and pilot body : 16402. • Pilot valve : TM-DXXP-XDA, including seal 16447.
- Mounting screw pilot to main valve : 35023. • Pressure seal between valve and base : 16446.
- Mounting screw valve to base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

Options :

- BSPP threads. • Flow controls (Part N°. FC82A-AA) • Explosion-proof model. • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)

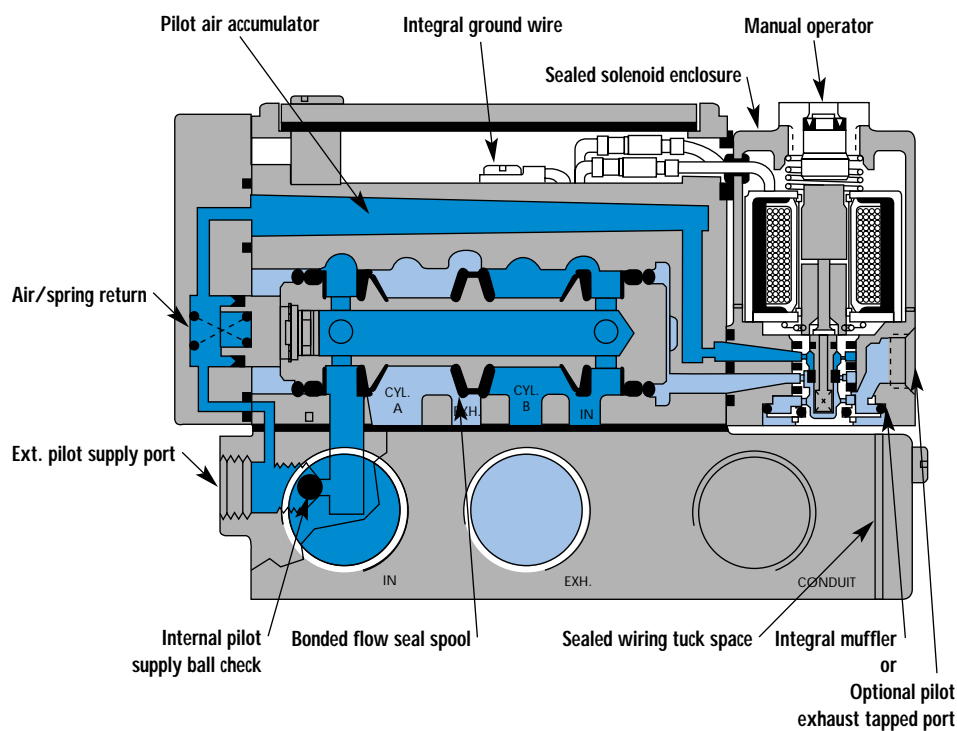


Individual mounting

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

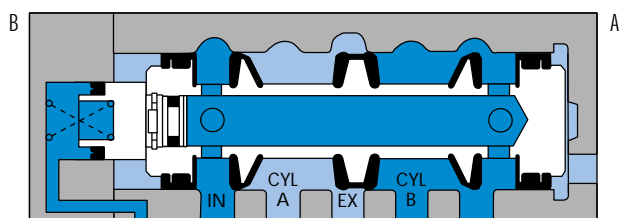
sub-base non "plug-in"	sub-base "plug-in"
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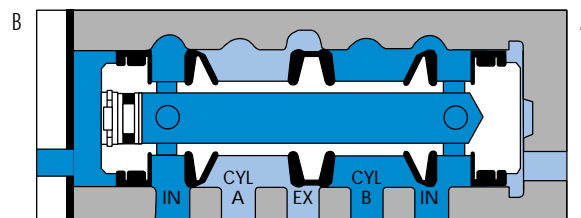
SERIES FEATURES

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

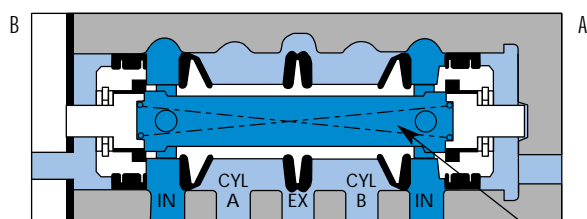
SPOOL CONFIGURATIONS



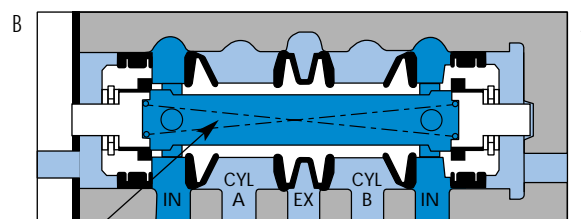
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN



3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure.
- Dual pressure on manifolds with sandwich regulators.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.
- All models available with sandwich regulators.

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

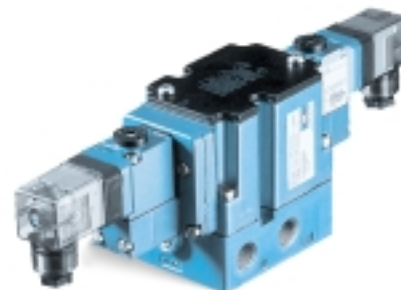
These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- A manual operator and indicator.
 - Remote air signal plug-in with optional integral air junctions in the base.
 - Ability to use a pilot signal pressure different from the main valve pressure.
- Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

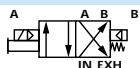
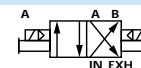
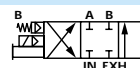
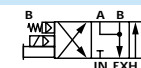
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	1/4" - 3/8" - 1/2"	3.0 C _v	sub-base non "plug-in"

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- XXVZZ	6322D-000-PM- XXVZZ	6332D-000-PM- XXVZZ	6342D-000-PM- XXVZZ
sub-base	Internal	6312D-131-PM- XXVZZ	6322D-131-PM- XXVZZ	6332D-131-PM- XXVZZ	6342D-131-PM- XXVZZ
1/4" NPTF	External	6312D-141-PM- XXVZZ	6322D-141-PM- XXVZZ	6332D-141-PM- XXVZZ	6342D-141-PM- XXVZZ
sub-base	Internal	6312D-231-PM- XXVZZ	6322D-231-PM- XXVZZ	6332D-231-PM- XXVZZ	6342D-231-PM- XXVZZ
3/8" NPTF	External	6312D-241-PM- XXVZZ	6322D-241-PM- XXVZZ	6332D-241-PM- XXVZZ	6342D-241-PM- XXVZZ
sub-base	Internal	6312D-331-PM- XXVZZ	6322D-331-PM- XXVZZ	6332D-331-PM- XXVZZ	6342D-331-PM- XXVZZ
1/2" NPTF	External	6312D-341-PM- XXVZZ	6322D-341-PM- XXVZZ	6332D-341-PM- XXVZZ	6342D-341-PM- XXVZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

OPTIONS

6312D-XXX-PM-**XXVZZ**

- For piped pilot exhaust replace M by P.
- For bottom cylinder ports (excluding 1/2"), replace by 4.
- For dual pressure valves (see section 6 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-131.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (2.0 C _v), 3/8" : (2.6 C _v), 1/2" (3.0 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

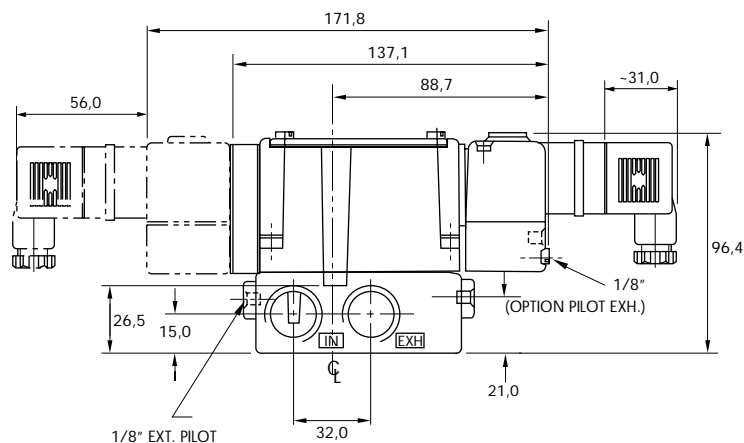
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



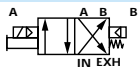
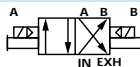
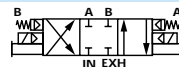
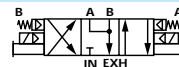
Function	Port size	Flow (Max)	Individual mounting	S
4/2 - 4/3	1/4" - 3/8" - 1/2"	3.0 C _v	sub-base "plug-in"	

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- XX YDA	6321D-000-PM- XX YDA	6331D-000-PM- XX YDA	6341D-000-PM- XX YDA
sub-base	Internal	6311D-111-PM- XX YDA	6321D-111-PM- XX YDA	6331D-111-PM- XX YDA	6341D-111-PM- XX YDA
1/4" NPTF	External	6311D-121-PM- XX YDA	6321D-121-PM- XX YDA	6331D-121-PM- XX YDA	6341D-121-PM- XX YDA
sub-base	Internal	6311D-211-PM- XX YDA	6321D-211-PM- XX YDA	6331D-211-PM- XX YDA	6341D-211-PM- XX YDA
3/8" NPTF	External	6311D-221-PM- XX YDA	6321D-221-PM- XX YDA	6331D-221-PM- XX YDA	6341D-221-PM- XX YDA
sub-base	Internal	6311D-311-PM- XX YDA	6321D-311-PM- XX YDA	6331D-311-PM- XX YDA	6341D-311-PM- XX YDA
1/2" NPTF	External	6311D-321-PM- XX YDA	6321D-321-PM- XX YDA	6331D-321-PM- XX YDA	6341D-321-PM- XX YDA

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

SOLENOID OPERATOR ►

XX Y DA

XX Voltage	Y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

OPTIONS

6311D-XXX-PM-**XX**YDA

- For piped pilot exhaust replace M by P.
- For bottom ports (excluding 1/2"), 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 section 6 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-111.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" (2.0 C _v), 3/8" : (2.6 C _v), 1/2" (3.0 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

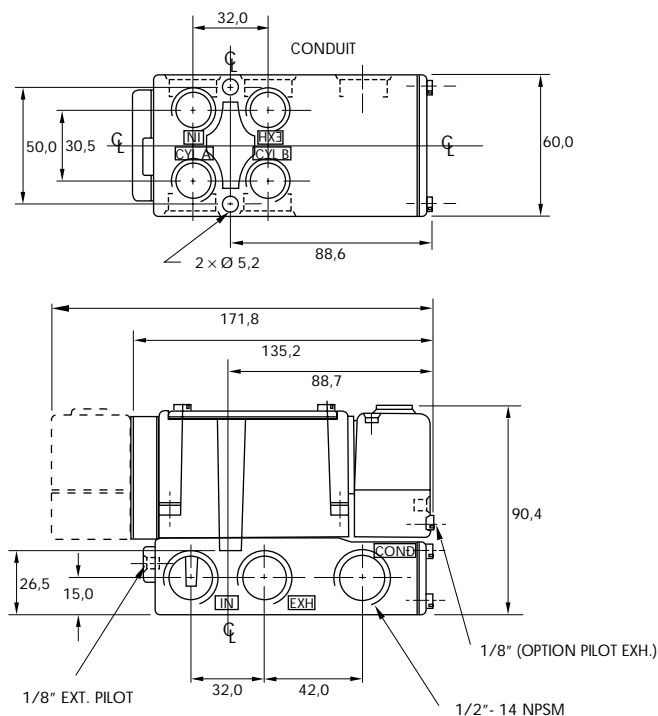
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16298.
- Mounting screw valve to base (x4) : 35303.

Options :

- BSPP threads.

DIMENSIONS

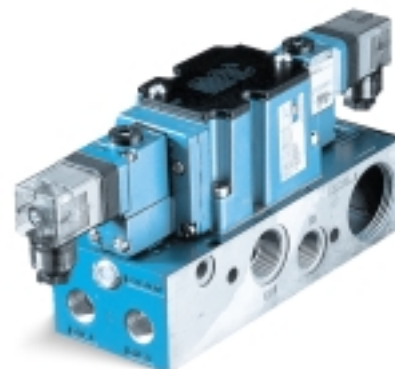
Dimensions shown are metric (mm)



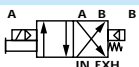
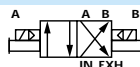



Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/8" - 1/2"	3.0 C _v	sub-base non "plug-in"

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-531-PM- XXYZZ	6322D-531-PM- XXYZZ	6332D-531-PM- XXYZZ	6342D-531-PM- XXYZZ	6352D-531-PM- XXYZZ
3/8" NPTF	External	6312D-541-PM- XXYZZ	6322D-541-PM- XXYZZ	6332D-541-PM- XXYZZ	6342D-541-PM- XXYZZ	6352D-541-PM- XXYZZ
sub-base	Internal	6312D-631-PM- XXYZZ	6322D-631-PM- XXYZZ	6332D-631-PM- XXYZZ	6342D-631-PM- XXYZZ	6352D-631-PM- XXYZZ
1/2" NPTF	External	6312D-641-PM- XXYZZ	6322D-641-PM- XXYZZ	6332D-641-PM- XXYZZ	6342D-641-PM- XXYZZ	6352D-641-PM- XXYZZ

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

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 section 6 for use with sandwich regulators), replace by 5.

MODIFICATIONS - MOD 0210 Bottom inlet port in addition to side inlet port - TO ORDER : 6312D-531-PM-111JA MOD 0210

- Note :
1. The valve less base is always the same for internal or external pilot. These options are effected in the manifold.
 2. To order manifolds without the valve, choose the manifold from the above table, then add 6300D as a prefix. Example 6300D-631.
 3. When ordering an external pilot connection for manifold bases, a common external pilot port is standard. One connection only is required for all the valves in the manifold whether single or double solenoid.
 4. Manifolds for solenoid and remote air operated valves must be ganged separately.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C _v), 1/2" (3.0 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

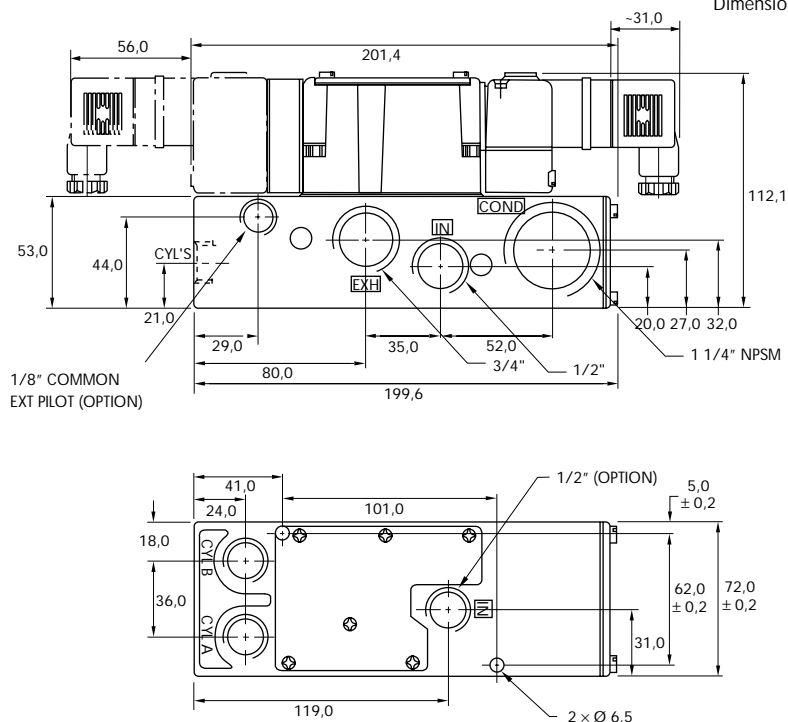
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



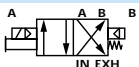
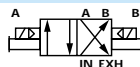
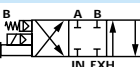


Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/8" - 1/2"	3.0 C _v	sub-base "plug-in"

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- xx yDA	6321D-000-PM- xx yDA	6331D-000-PM- xx yDA	6341D-000-PM- xx yDA	6351D-000-PM- xx yDA
sub-base	Internal	6311D-511-PM- xx yDA	6321D-511-PM- xx yDA	6331D-511-PM- xx yDA	6341D-511-PM- xx yDA	6351D-511-PM- xx yDA
3/8" NPTF	External	6311D-521-PM- xx yDA	6321D-521-PM- xx yDA	6331D-521-PM- xx yDA	6341D-521-PM- xx yDA	6351D-521-PM- xx yDA
sub-base	Internal	6311D-611-PM- xx yDA	6321D-611-PM- xx yDA	6331D-611-PM- xx yDA	6341D-611-PM- xx yDA	6351D-611-PM- xx yDA
1/2" NPTF	External	6311D-621-PM- xx yDA	6321D-621-PM- xx yDA	6331D-621-PM- xx yDA	6341D-621-PM- xx yDA	6351D-621-PM- xx yDA

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

SOLENOID OPERATOR ➤

xx Y DA

xx Voltage	Y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

OPTIONS

6311D-XXX-PM-**xx**yDA

- 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 section 6 for use with sandwich regulators), replace by 6.

MODIFICATIONS - MOD 0210 Bottom inlet port in addition to side inlet port - TO ORDER : 6311D-511-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-511.
 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.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (2.6 C _v), 1/2" (3.0 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	Energize : 4-13 ms	De-energize : 10-17 ms

Spare parts :

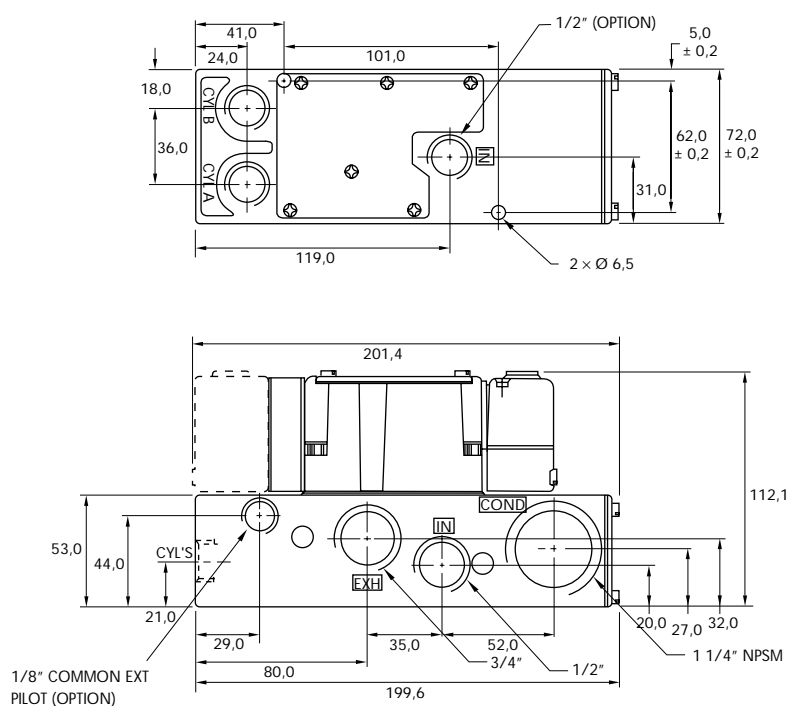
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16396.
- Mounting screw valve to base (x4) : 35303. • Tie-rod (x2) : 19624. • Fastening kit : N-63002-01
- Inlet isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)

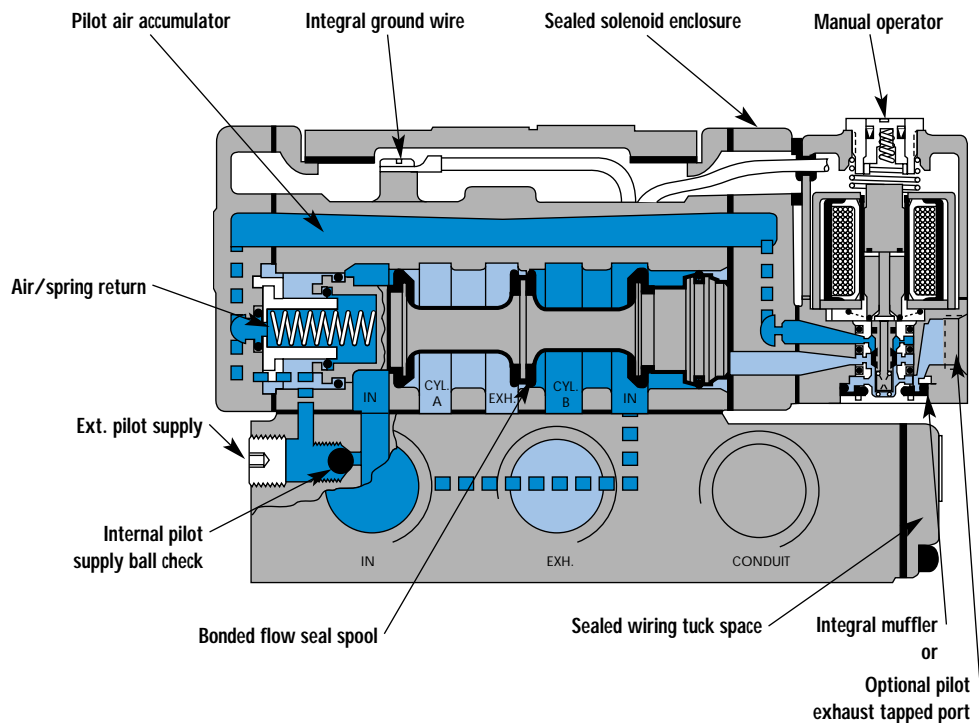


Individual mounting

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

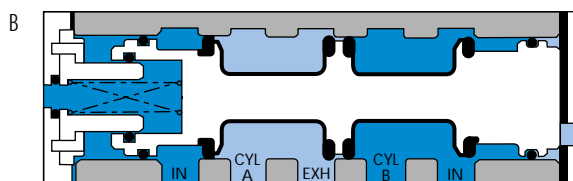
sub-base non "plug-in"	sub-base "plug-in"
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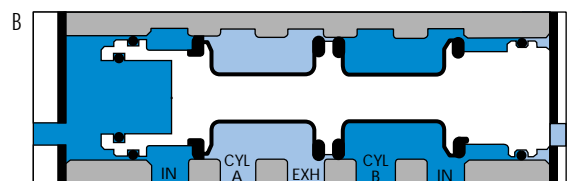
SERIES FEATURES

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

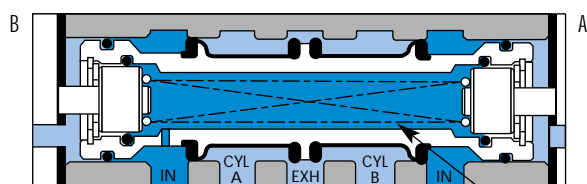
SPOOL CONFIGURATIONS



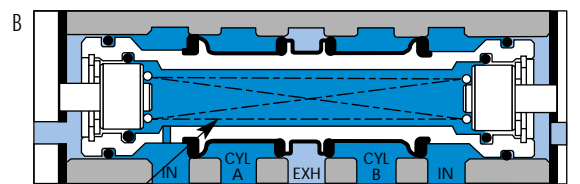
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN

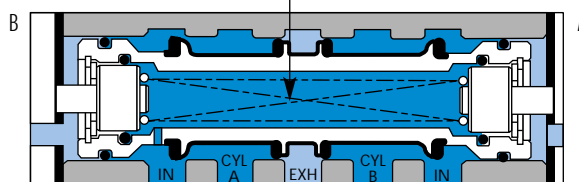


3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

AIR/SPRING
CENTERING



3 POS. PRESSURE CENTER
CENTER POSITION SHOWN

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base or add-a-unit manifold base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.

REMOTE AIR PILOT OPERATED VALVES

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

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

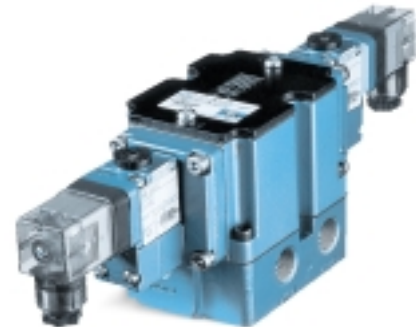
- A manual operator and indicator.
- Remote air signal plug-in with optional integral air junctions in the base.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

ALL MODELS AVAILABLE WITH SANDWICH TYPE REGULATORS

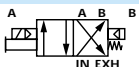
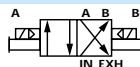
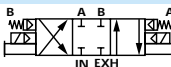
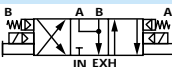

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C _v	sub-base non "plug-in"

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- XXVZZ	6522B-000-PM- XXVZZ	6532B-000-PM- XXVZZ	6542B-000-PM- XXVZZ	6552B-000-PM- XXVZZ
sub-base	Internal	6512B-131-PM- XXVZZ	6522B-131-PM- XXVZZ	6532B-131-PM- XXVZZ	6542B-131-PM- XXVZZ	6552B-131-PM- XXVZZ
3/8" NPTF	External	6512B-141-PM- XXVZZ	6522B-141-PM- XXVZZ	6532B-141-PM- XXVZZ	6542B-141-PM- XXVZZ	6552B-141-PM- XXVZZ
sub-base	Internal	6512B-231-PM- XXVZZ	6522B-231-PM- XXVZZ	6532B-231-PM- XXVZZ	6542B-231-PM- XXVZZ	6552B-231-PM- XXVZZ
1/2" NPTF	External	6512B-241-PM- XXVZZ	6522B-241-PM- XXVZZ	6532B-241-PM- XXVZZ	6542B-241-PM- XXVZZ	6552B-241-PM- XXVZZ
sub-base	Internal	6512B-331-PM- XXVZZ	6522B-331-PM- XXVZZ	6532B-331-PM- XXVZZ	6542B-331-PM- XXVZZ	6552B-331-PM- XXVZZ
3/4" NPTF	External	6512B-341-PM- XXVZZ	6522B-341-PM- XXVZZ	6532B-341-PM- XXVZZ	6542B-341-PM- XXVZZ	6552B-341-PM- XXVZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

OPTIONS

6512B-XXX-PM-**XXVZZ**

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

MODIFICATIONS

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

- 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-131.

TECHNICAL DATA

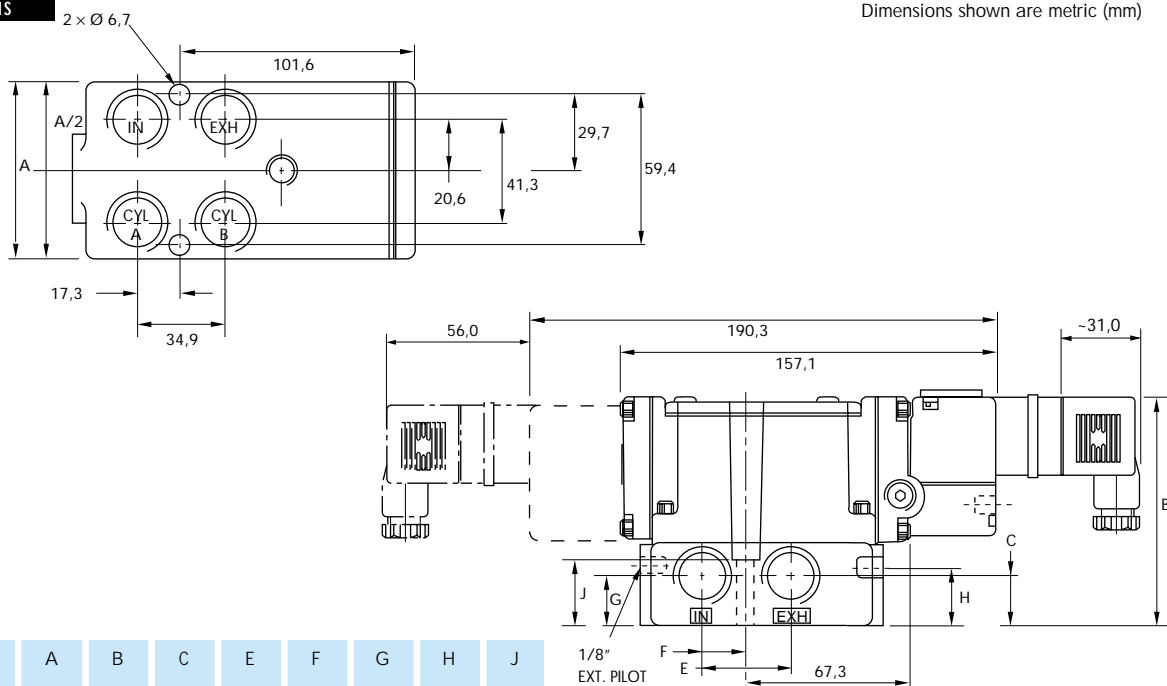
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C _v), 1/2" : (5.0 C _v), 3/4" : (5.1 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

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

Options : • BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



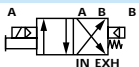
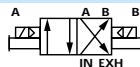
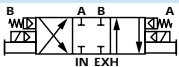
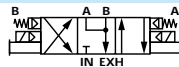

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C _v	sub-base "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6511B-000-PM-xxYDA	6521B-000-PM-xxYDA	6531B-000-PM-xxYDA	6541B-000-PM-xxYDA	6551B-000-PM-xxYDA
sub-base	Internal	6511B-111-PM-xxYDA	6521B-111-PM-xxYDA	6531B-111-PM-xxYDA	6541B-111-PM-xxYDA	6551B-111-PM-xxYDA
3/8" NPTF	External	6511B-121-PM-xxYDA	6521B-121-PM-xxYDA	6531B-121-PM-xxYDA	6541B-121-PM-xxYDA	6551B-121-PM-xxYDA
sub-base	Internal	6511B-211-PM-xxYDA	6521B-211-PM-xxYDA	6531B-211-PM-xxYDA	6541B-211-PM-xxYDA	6551B-211-PM-xxYDA
1/2" NPTF	External	6511B-221-PM-xxYDA	6521B-221-PM-xxYDA	6531B-221-PM-xxYDA	6541B-221-PM-xxYDA	6551B-221-PM-xxYDA
sub-base	Internal	6511B-311-PM-xxYDA	6521B-311-PM-xxYDA	6531B-311-PM-xxYDA	6541B-311-PM-xxYDA	6551B-311-PM-xxYDA
3/4" NPTF	External	6511B-321-PM-xxYDA	6521B-321-PM-xxYDA	6531B-321-PM-xxYDA	6541B-321-PM-xxYDA	6551B-321-PM-xxYDA

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

SOLENOID OPERATOR ➤

xx Y DA

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

OPTIONS

6511B-XXX-PM-xxYDA

- For piped pilot exhaust replace M by P.
- For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light).
- For lights on 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 3/8" & 1/2" only
0004	Full side porting and additional bottom inlet, exh. & cyl. ports	Available on individual base 3/8" 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-111.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C _v), 1/2" : (5.0 C _v), 3/4" : (5.1 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

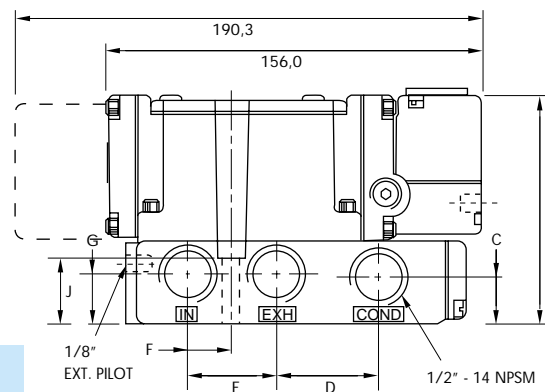
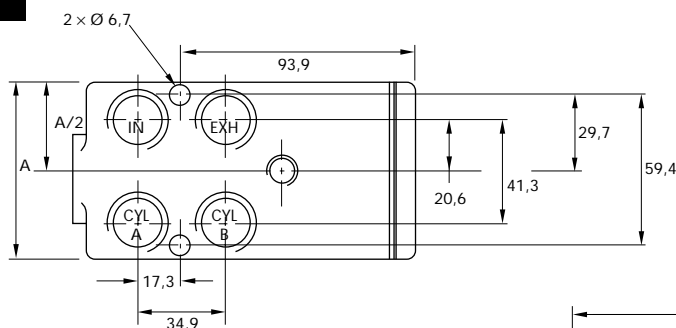
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



Port size	A	B	C	D	E	F	G	H	J
3/8" - 1/2"	69.6	97.4	18.3	40.6	36.0	17.9	19.0	23.6	25.4
3/4"	94.5	109.3	17.3	46.7	40.1	19.2	20.8	35.9	36.6

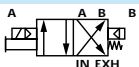
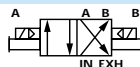
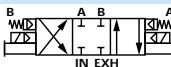
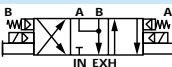

Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C _v	sub-base non "plug-in"

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- XXVZZ	6522B-000-PM- XXVZZ	6532B-000-PM- XXVZZ	6542B-000-PM- XXVZZ	6552B-000-PM- XXVZZ
sub-base	Internal	6512B-431-PM- XXVZZ	6522B-431-PM- XXVZZ	6532B-431-PM- XXVZZ	6542B-431-PM- XXVZZ	6552B-431-PM- XXVZZ
3/8" NPTF	External	6512B-441-PM- XXVZZ	6522B-441-PM- XXVZZ	6532B-441-PM- XXVZZ	6542B-441-PM- XXVZZ	6552B-441-PM- XXVZZ
sub-base	Internal	6512B-531-PM- XXVZZ	6522B-531-PM- XXVZZ	6532B-531-PM- XXVZZ	6542B-531-PM- XXVZZ	6552B-531-PM- XXVZZ
1/2" NPTF	External	6512B-541-PM- XXVZZ	6522B-541-PM- XXVZZ	6532B-541-PM- XXVZZ	6542B-541-PM- XXVZZ	6552B-541-PM- XXVZZ
sub-base	Internal	6512B-631-PM- XXVZZ	6522B-631-PM- XXVZZ	6532B-631-PM- XXVZZ	6542B-631-PM- XXVZZ	6552B-631-PM- XXVZZ
3/4" NPTF	External	6512B-641-PM- XXVZZ	6522B-641-PM- XXVZZ	6532B-641-PM- XXVZZ	6542B-641-PM- XXVZZ	6552B-641-PM- XXVZZ

Note : Above codes shown are for side cylinder ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

OPTIONS

6512B-XXX-PM-**XXVZZ**

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

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
O112	Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)	Available on all manifold models
O210	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
O364	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-431.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C _v), 1/2" : (5.0 C _v), 3/4" : (5.1 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

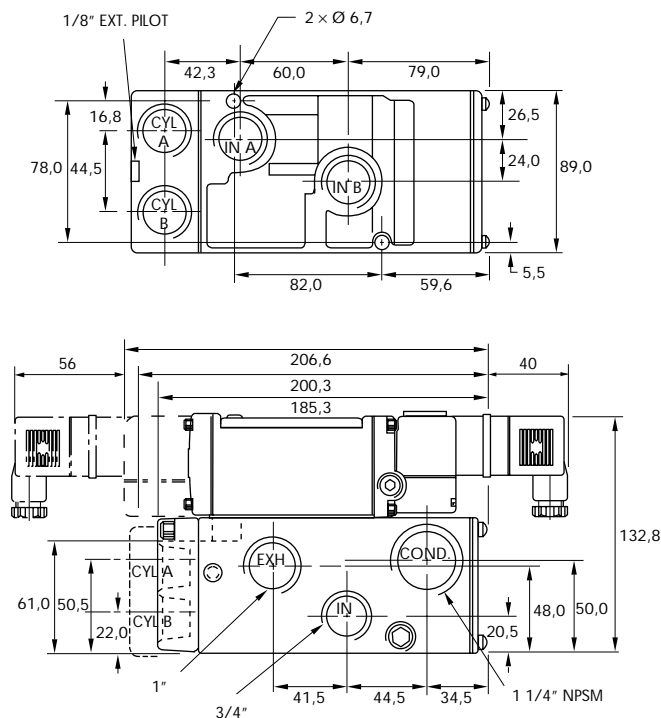
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)

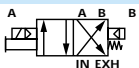
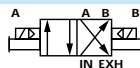
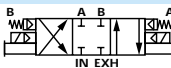

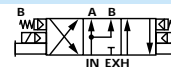


Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/8" - 1/2" - 3/4"	5.1 C _v	sub-base "plug-in"

OPERATIONAL BENEFITS

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

HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6511B-000-PM-xxYDA	6521B-000-PM-xxYDA	6531B-000-PM-xxYDA	6541B-000-PM-xxYDA	6551B-000-PM-xxYDA
sub-base	Internal	6511B-411-PM-xxYDA	6521B-411-PM-xxYDA	6531B-411-PM-xxYDA	6541B-411-PM-xxYDA	6551B-411-PM-xxYDA
3/8" NPTF	External	6511B-421-PM-xxYDA	6521B-421-PM-xxYDA	6531B-421-PM-xxYDA	6541B-421-PM-xxYDA	6551B-421-PM-xxYDA
sub-base	Internal	6511B-511-PM-xxYDA	6521B-511-PM-xxYDA	6531B-511-PM-xxYDA	6541B-511-PM-xxYDA	6551B-511-PM-xxYDA
1/2" NPTF	External	6511B-521-PM-xxYDA	6521B-521-PM-xxYDA	6531B-521-PM-xxYDA	6541B-521-PM-xxYDA	6551B-521-PM-xxYDA
sub-base	Internal	6511B-611-PM-xxYDA	6521B-611-PM-xxYDA	6531B-611-PM-xxYDA	6541B-611-PM-xxYDA	6551B-611-PM-xxYDA
3/4" NPTF	External	6511B-621-PM-xxYDA	6521B-621-PM-xxYDA	6531B-621-PM-xxYDA	6541B-621-PM-xxYDA	6551B-621-PM-xxYDA

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

SOLENOID OPERATOR ►

xx Y DA

xx	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

OPTIONS

6511B-XXX-PM-xxYDA

- 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
O112	Side inlet & exhaust with bottom cyl. ports (No end cyl. ports)	Available on all manifold models
O210	Porting as ordered in model number plus an additional bottom inlet	Available on all manifold models
O364	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-411.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (4.5 C _v), 1/2" : (5.0 C _v), 3/4" : (5.1 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 12 ms	De-energize : 12 ms
	120/60	Energize : 9-14 ms	De-energize : 11-18 ms

Spare parts :

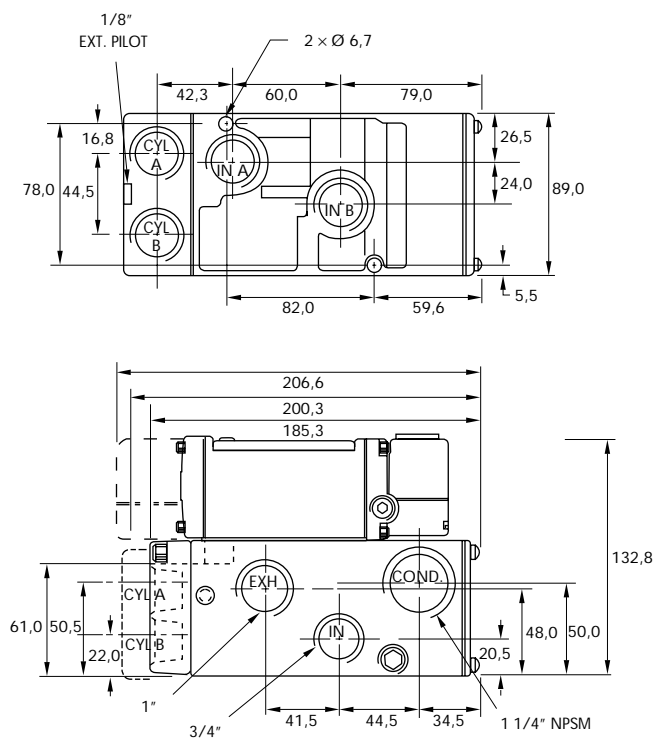
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16246.
- Mounting screw valve to base (x4) : 32201. • Tie-rod (x2) : 19540. • Fastening kit : N-65002-01
- Inlet isolator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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)

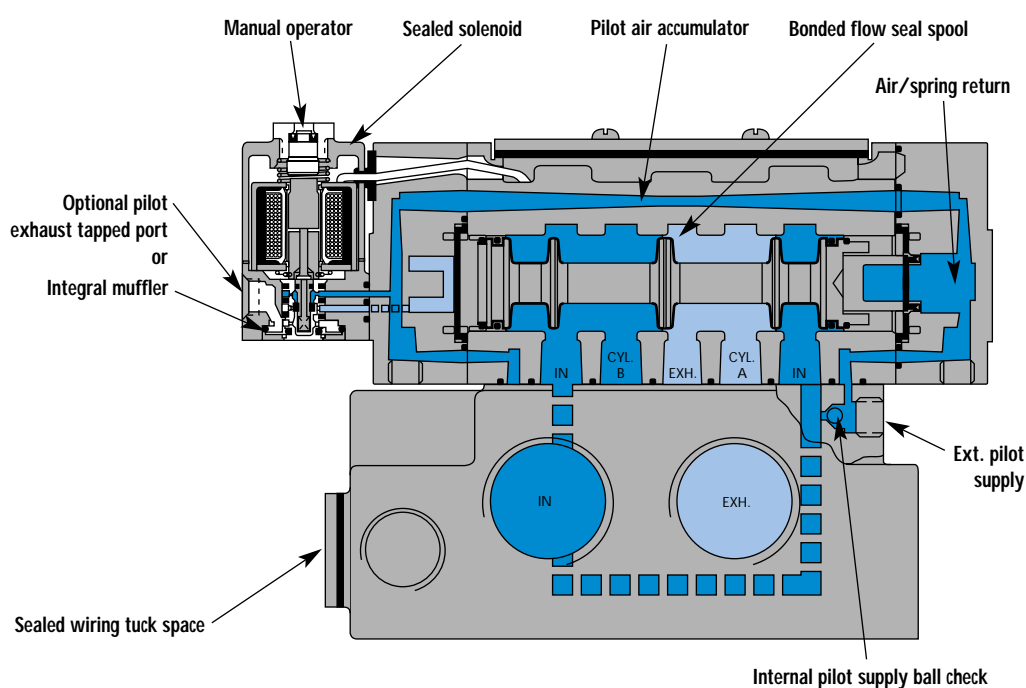


Individual mounting

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

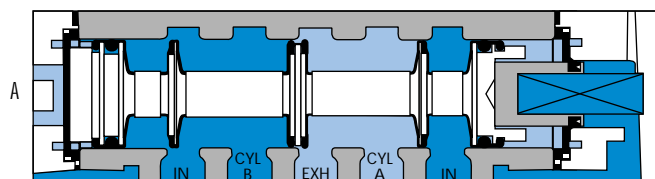
sub-base non "plug-in"	sub-base "plug-in"
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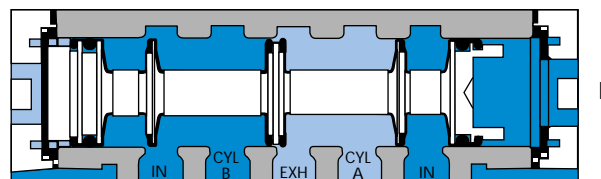
SERIES FEATURES

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

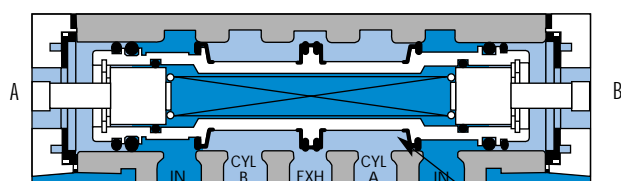
SPOOL CONFIGURATIONS



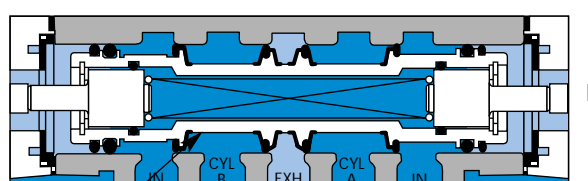
2 POS. SINGLE OPERATOR SPRING RETURN
B ACTUATED SHOWN



2 POS. DOUBLE OPERATOR
B ACTUATED SHOWN

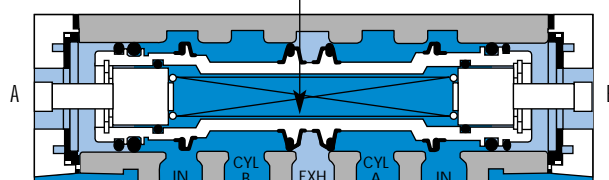


3 POS. OPEN CENTER
CENTER POSITION SHOWN



3 POS. CLOSED CENTER
CENTER POSITION SHOWN

PATENTED
AIR/SPRING
CENTERING



3 POS. PRESSURE CENTER
CENTER POSITION SHOWN

VALVE CONFIGURATIONS AVAILABLE

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

- 2-Pos., single or double operators (solenoid or remote air).
- 3-Pos., double operator-Closed Center, Open Center or Pressure Center (solenoid or remote air).
- Single pressure or dual pressure.
- Individual base.
- Internal pilot or for Vacuum to 25 PSI main valve pressures, external pilot.
- Manual and mechanical operators available.

REMOTE AIR PILOT OPERATED VALVES

These remote air versions feature:

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

REMOTE AIR PILOT, PILOT OPERATED VALVES

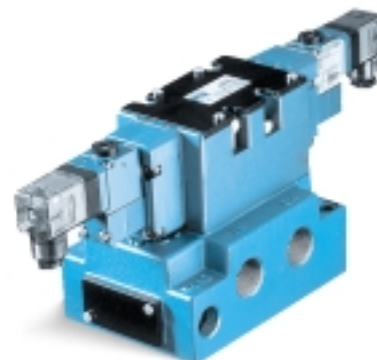
These special air versions have the same features as the remote air pilot operated models, but additionally feature:

- A manual operator and indicator.
- Ability to use a pilot signal pressure different from the main valve pressure. Pilot signal can be from 20 to 150 PSIG, regardless of main valve pressure.

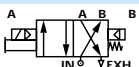
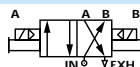
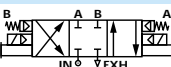
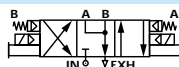
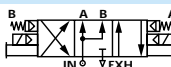
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	3/4" - 1"	9.6 C _v	sub-base non "plug-in"

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-231-PM-XXYZZ	6622A-231-PM-XXYZZ	6632A-231-PM-XXYZZ	6642A-231-PM-XXYZZ	6652A-231-PM-XXYZZ
3/4" NPTF	External	6612A-241-PM-XXYZZ	6622A-241-PM-XXYZZ	6632A-241-PM-XXYZZ	6642A-241-PM-XXYZZ	6652A-241-PM-XXYZZ
sub-base	Internal	6612A-331-PM-XXYZZ	6622A-331-PM-XXYZZ	6632A-331-PM-XXYZZ	6642A-331-PM-XXYZZ	6652A-331-PM-XXYZZ
1" NPTF	External	6612A-341-PM-XXYZZ	6622A-341-PM-XXYZZ	6632A-341-PM-XXYZZ	6642A-341-PM-XXYZZ	6652A-341-PM-XXYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

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
0002	Bottom inlet, exh. & cyl ports (side ports plugged)	3/4" individual base
0004	Full side porting and additional. Bottom inlet, exh. & cyl ports	3/4" individual base
0112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	3/4" individual base

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

EXAMPLE : 6612A-231-PM-111JA MOD 0002

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-231.

4. 2 position and 3 position valve bodies are not interchangeable.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C _v), 1" : (9.6 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

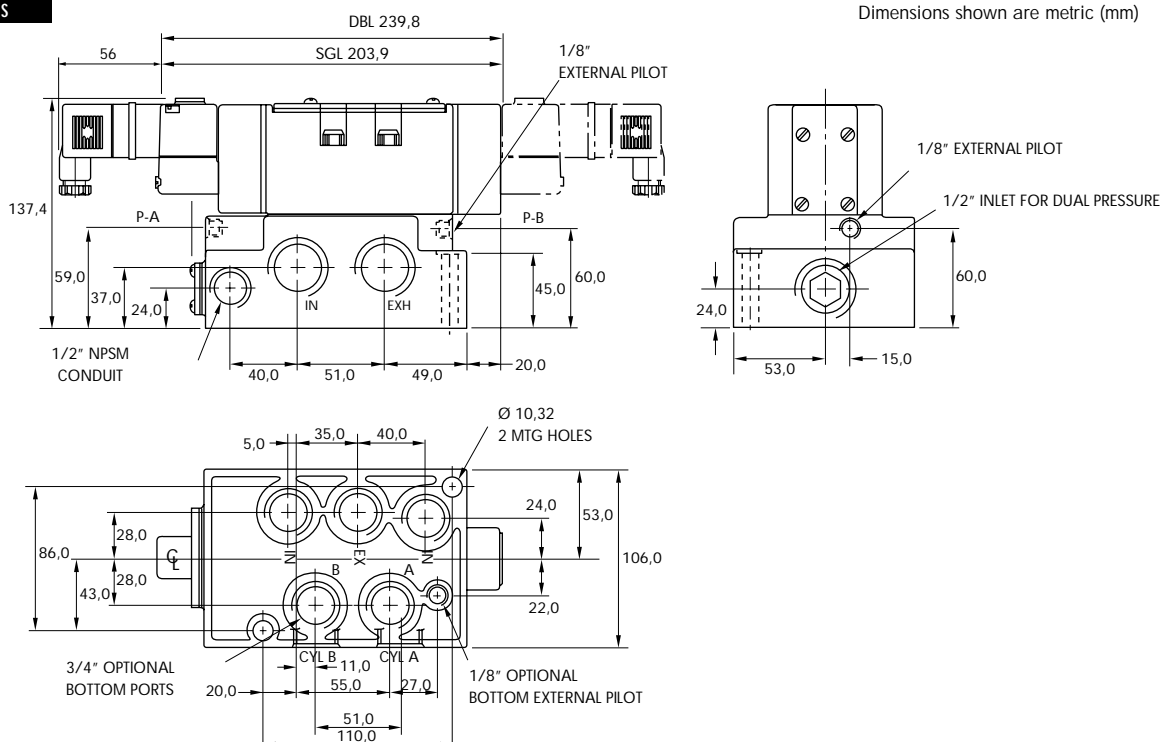
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



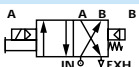
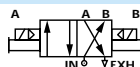
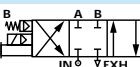
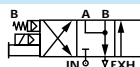
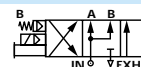
Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	3/4" - 1"	9.6 C _v	sub-base "plug-in"

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 yDA	6621A-000-PM- xx yDA	6631A-000-PM- xx yDA	6641A-000-PM- xx yDA	6651A-000-PM- xx yDA
sub-base	Internal	6611A-211-PM- xx yDA	6621A-211-PM- xx yDA	6631A-211-PM- xx yDA	6641A-211-PM- xx yDA	6651A-211-PM- xx yDA
3/4" NPTF	External	6611A-221-PM- xx yDA	6621A-221-PM- xx yDA	6631A-221-PM- xx yDA	6641A-221-PM- xx yDA	6651A-221-PM- xx yDA
sub-base	Internal	6611A-311-PM- xx yDA	6621A-311-PM- xx yDA	6631A-311-PM- xx yDA	6641A-311-PM- xx yDA	6651A-311-PM- xx yDA
1" NPTF	External	6611A-321-PM- xx yDA	6621A-321-PM- xx yDA	6631A-321-PM- xx yDA	6641A-321-PM- xx yDA	6651A-321-PM- xx yDA

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

SOLENOID OPERATOR ►

xx y DA

xx Voltage	y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

OPTIONS

6611A-XXX-PM- xx yDA	<ul style="list-style-type: none"> - For piped pilot exhaust replace M by P. - For dual pressure valve replace by 4 (no light), by 5 (sgl. light), by 6 (dbl. light). - For lights on base, replace by 2 (sgl. light), by 3 (dbl. light). - For lights on valve body, replace by 3.
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MODIFICATIONS

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

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-211.

4. 2 position and 3 position valve bodies are not interchangeable.

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

EXAMPLE : 6611A-211-PM-111DA **MOD 0002**

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C _v), 1" : (9.6 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

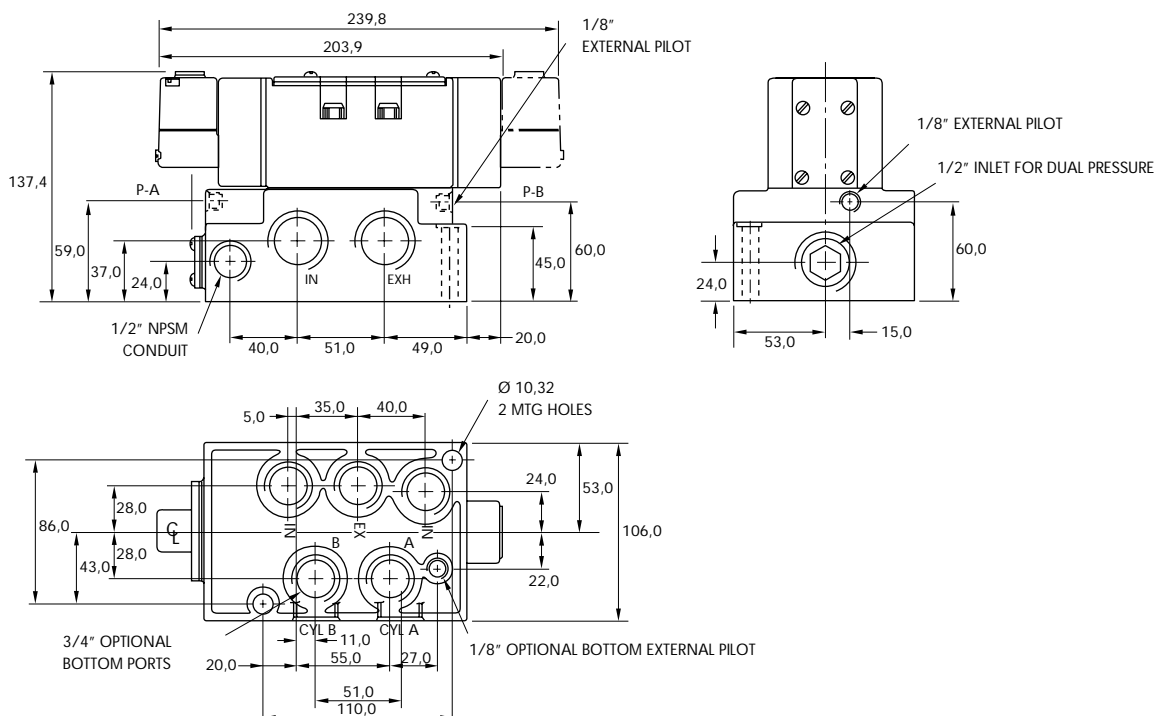
- Solenoid operator (power ≥ 4 W) : D1-XXBE, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYDA-BE, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416.

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



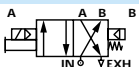
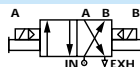
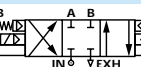
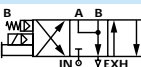
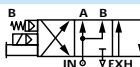
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/4" - 1" - 1 1/4"	9.6 C _v	sub-base non "plug-in"

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-431-PM- XXYZZ	6622A-431-PM- XXYZZ	6632A-431-PM- XXYZZ	6642A-431-PM- XXYZZ	6652A-431-PM- XXYZZ
3/4" NPTF	External	6612A-441-PM- XXYZZ	6622A-441-PM- XXYZZ	6632A-441-PM- XXYZZ	6642A-441-PM- XXYZZ	6652A-441-PM- XXYZZ
sub-base	Internal	6612A-531-PM- XXYZZ	6622A-531-PM- XXYZZ	6632A-531-PM- XXYZZ	6642A-531-PM- XXYZZ	6652A-531-PM- XXYZZ
1" NPTF	External	6612A-541-PM- XXYZZ	6622A-541-PM- XXYZZ	6632A-541-PM- XXYZZ	6642A-541-PM- XXYZZ	6652A-541-PM- XXYZZ
sub-base	Internal	6612A-631-PM- XXYZZ	6622A-631-PM- XXYZZ	6632A-631-PM- XXYZZ	6642A-631-PM- XXYZZ	6652A-631-PM- XXYZZ
1 1/4" NPTF	External	6612A-641-PM- XXYZZ	6622A-641-PM- XXYZZ	6632A-641-PM- XXYZZ	6642A-641-PM- XXYZZ	6652A-641-PM- XXYZZ

Note : Above codes shown are for side ports.

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/60, 24/50		JA Square connector
59 24 VDC (2.5 W)		JC Square connector with light
87 24 VDC (17.1 W)		BA Flying leads (18")
61 24 VDC (8.5 W)		

Note : Photo shown with JC connector.

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
O210	1 1/4" Bottom inlet	Manifold base
O364	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base
O112	Side inlet & exhaust with bottom cyl. ports (side cyl. ports plugged)	1" Manifold base

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

EXAMPLE : 6612A-431-PM-111JA **MOD O364**

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-431.

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.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C _v), 1" : (9.6 C _v), 1 1/4" : (9.6 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

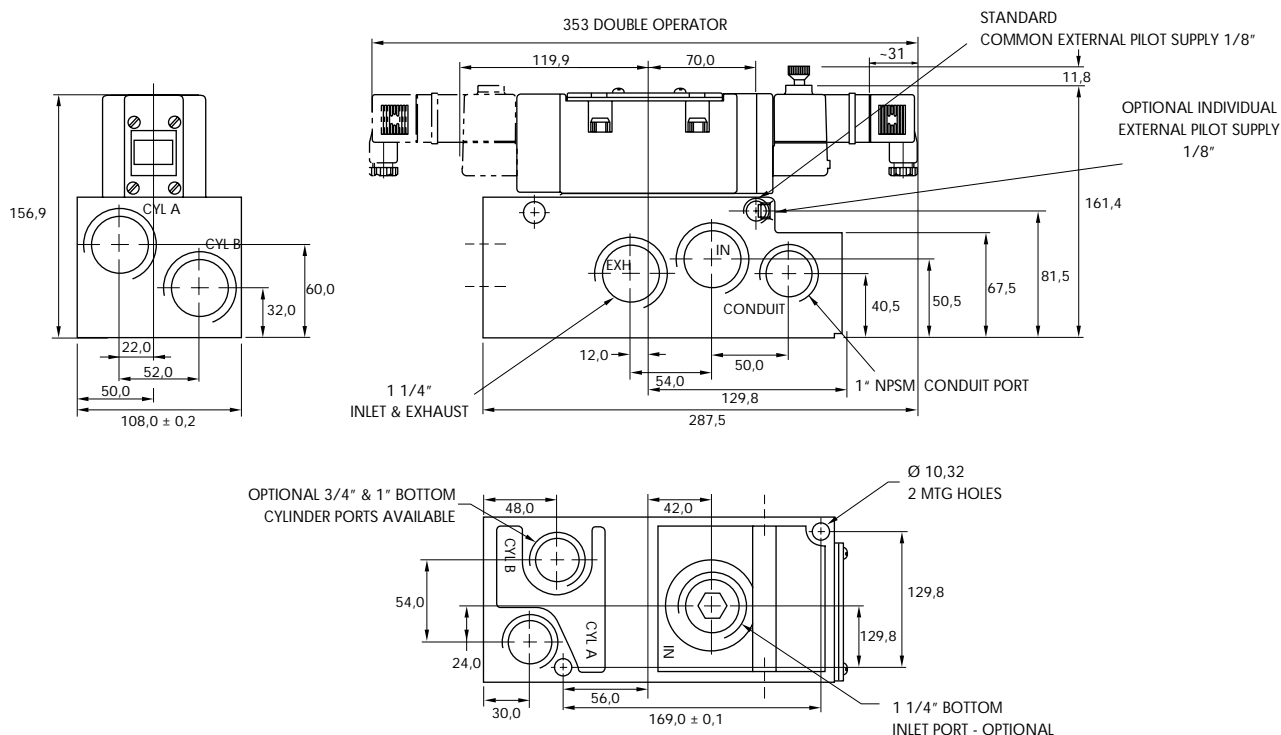
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16436.
- Mounting screw valve to base (x4) : 35416. • Tie-rod (x2) : 19789. • Fastening kit : N-66002-01.
- Inlet & exhaust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

Options :

- BSPP threads.

DIMENSIONS

Dimensions shown are metric (mm)



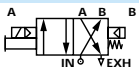
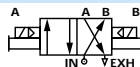
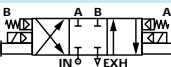
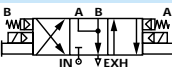
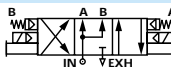
Function	Port size	Flow (Max)	Manifold mounting
4/2 - 4/3	3/4" - 1" - 1 1/4"	9.6 C _v	sub-base "plug-in"

OPERATIONAL BENEFITS

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



HOW TO ORDER

Port size	Pilot air	4/2 Single operator	4/2 Double operator	4/3 Closed center	4/3 Open center	4/3 Pressure center
						
Valve less base		6611A-000-PM-xxYDA	6621A-000-PM-xxYDA	6631A-000-PM-xxYDA	6641A-000-PM-xxYDA	6651A-000-PM-xxYDA
sub-base	Internal	6611A-411-PM-xxYDA	6621A-411-PM-xxYDA	6631A-411-PM-xxYDA	6641A-411-PM-xxYDA	6651A-411-PM-xxYDA
3/4" NPTF	External	6611A-421-PM-xxYDA	6621A-421-PM-xxYDA	6631A-421-PM-xxYDA	6641A-421-PM-xxYDA	6651A-421-PM-xxYDA
sub-base	Internal	6611A-511-PM-xxYDA	6621A-511-PM-xxYDA	6631A-511-PM-xxYDA	6641A-511-PM-xxYDA	6651A-511-PM-xxYDA
1" NPTF	External	6611A-521-PM-xxYDA	6621A-521-PM-xxYDA	6631A-521-PM-xxYDA	6641A-521-PM-xxYDA	6651A-521-PM-xxYDA
sub-base	Internal	6611A-611-PM-xxYDA	6621A-611-PM-xxYDA	6631A-611-PM-xxYDA	6641A-611-PM-xxYDA	6651A-611-PM-xxYDA
1 1/4" NPTF	External	6611A-621-PM-xxYDA	6621A-621-PM-xxYDA	6631A-621-PM-xxYDA	6641A-621-PM-xxYDA	6651A-621-PM-xxYDA

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

SOLENOID OPERATOR ➤

XX Y DA

XX	Voltage	Y	Manual operator
11	120/60, 110/50	1	Non-locking
12	240/60, 220/50	2	Locking
22	24/60, 24/50		
59	24 VDC (2.5 W)		
87	24 VDC (17.1 W)		
61	24 VDC (8.5 W)		

OPTIONS

6611A-XXX-PM-xxYDA

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

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
O210	1 1/4" Bottom inlet	Manifold base
O364	1 1/4" Bottom inlet, 3/4" or 1" Bottom cyl.	Manifold base
O112	Side inlet & exhaust with bottom cyl. ports (side cyl.ports plugged)	1" Manifold base

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

EXAMPLE : 6611A-411-PM-111DA **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-411.
 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.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (9.0 C _v), 1" : (9.6 C _v), 1 1/4" : (9.6 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

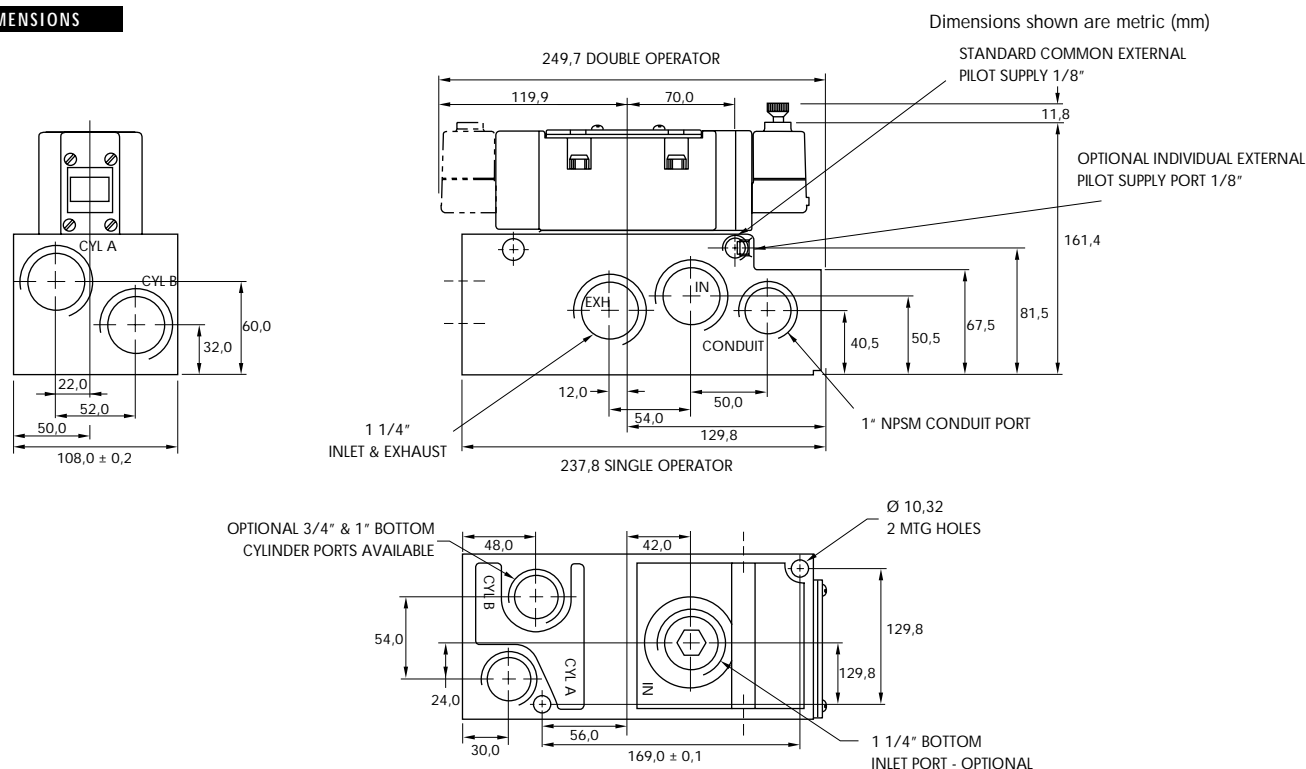
Spare parts :

- Solenoid operator (power ≥ 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 :

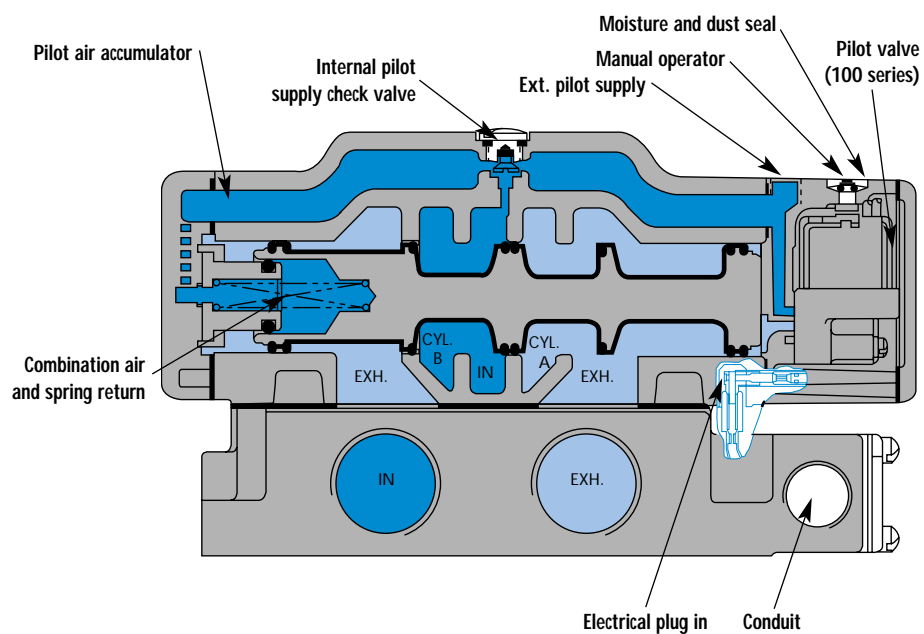
- BSPP threads.

DIMENSIONS



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.

SOLENOID PILOT

The solenoid pilot utilized on the 1300 Series is the extremely fast and reliable, spring biased MAC 100 Series three-way manifold valve which features a high flow balanced poppet. The patented spring biased floating pole piece MACSOLENOID® of the 100 Series practically eliminates the two most common causes of solenoid valve failures: coil burnout on AC service and failure to shift. The versatility of the 100 Series permits either internal or external pilot supply. The solenoid housing incorporates a 1/8" NPTF pilot exhaust connection which can be either muffled or piped away and the external pilot supply connection.

MAIN VALVE

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

ACCUMULATOR

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

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

DIFFERENTIAL RETURN

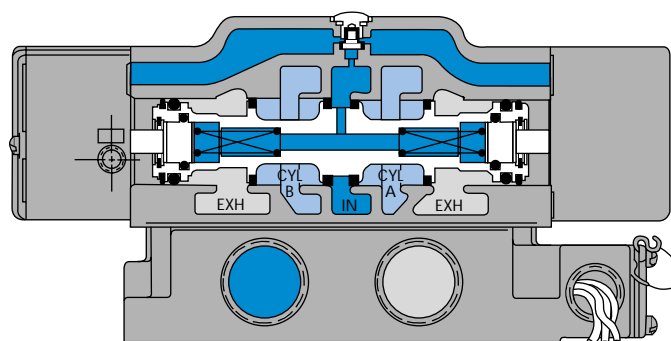
Single solenoid pilot or single air pilot operated models contain a combination spring and air assisted differential return. Supplied from the accumulator it balances the shifting forces for consistent operation and positive spool return.

BASES

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

3-POSITION VALVES

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



3-POSITION DOUBLE
SOLENOID CLOSED CENTER

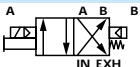
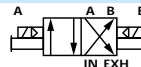
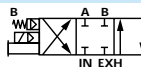

Function	Port size	Flow (Max)	Individual mounting
4/2 - 4/3	3/4" - 1" - 1 1/4" - 1 1/2"	15.9 C _v	sub-base "plug-in"

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-xxxD-xx	1303G-xxxD-xx	1307G-xxxD-xx	1308G-xxxD-xx
Sub base 3/4" NPTF	1321G-xxxD-xx	1323G-xxxD-xx	1327G-xxxD-xx	1328G-xxxD-xx
Sub base 1" NPTF	1331G-xxxD-xx	1333G-xxxD-xx	1337G-xxxD-xx	1338G-xxxD-xx
Sub base 1 1/4" NPTF	1351G-xxxD-xx	1353G-xxxD-xx	1357G-xxxD-xx	1358G-xxxD-xx
Sub base 1 1/2" NPTF	1361G-xxxD-xx	1363G-xxxD-xx	1367G-xxxD-xx	1368G-xxxD-xx

SOLENOID OPERATOR ►

xx y D- x x

xx	Voltage	y	Manual operator	x	Pilot air	x	Indicator light
11	120/60, 110/50	1	Non-locking	1	Internal	5	With light in base
12	240/60, 220/50	2	Locking	2	External		
22	24/60, 24/50						
59	24 VDC (2.5 W)						
87	24 VDC (17.1 W)						
61	24 VDC (8.5 W)						

Bases

10952	3/4" NPTF
10953	1" NPTF
10954	1-1/4" NPTF
10955	1-1/2" NPTF

BOTTOM PORTS available only on 3/4" valves

For bottom ports only specify **MOD 0002**

For side and bottom ports specify **MOD 0004**

EXAMPLE : 1321G-111D-1 **MOD 0002**

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/4" : (11.5 C _v), 1" : (13.7 C _v), 1 1/4" : (15.4 C _v), 1 1/2" : (15.9 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 20 ms	De-energize : 28 ms
	120/60	Energize : 17-23 ms	De-energize : 29-35 ms

Spare parts :

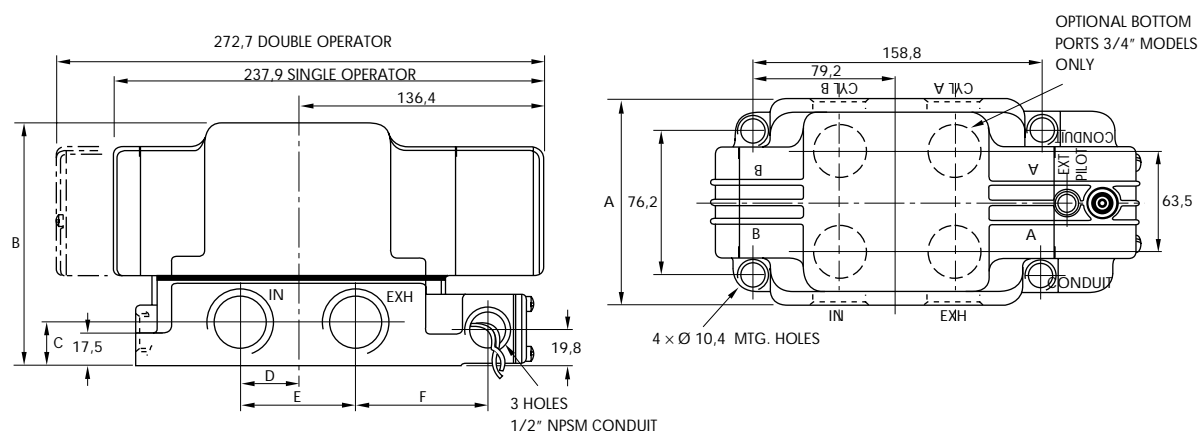
- Solenoid operator (power ≥ 4 W) : D1-XXBD. • Pressure seal between valve and base : 16083.
- Pilot valve : 150B-XXBD, including mounting screws 32180 and adaptor plate N-03001.
- Mounting screw valve to base (x4) : 32396.

Options :

- BSPP threads. • Lights in base.

DIMENSIONS

Dimensions shown are metric (mm)



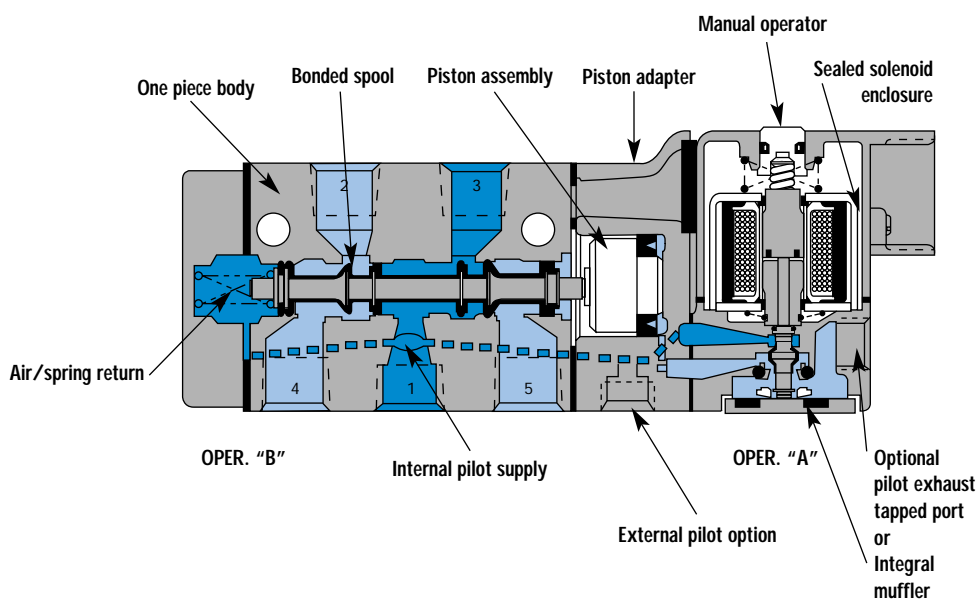
Port size	A	B	C	D	E	F
3/4", 1" NPTF	111.3	132.4	23.8	31.7	63.5	71.4
1 1/4" NPTF	114.3	148.3	30.2	38.1	76.2	65.0
1 1/2" NPTF				35.0	69.9	68.0

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.
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SERIES FEATURES

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

SPECIAL APPLICATIONS :

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

EXTERNAL PILOT APPLICATIONS :

An External Pilot is only required when the main valve pressure is less than 20 PSIG on single solenoid or 10 PSIG on double solenoid valves in 2-position models, or less than 20 PSIG on 3-position double solenoid models. Also an External Pilot is required when main valve pressure is in excess of 150 PSIG.

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

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

DUAL PRESSURE (TWO INLET) APPLICATIONS :

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

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

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

MULTIPLE PRESSURES TO A STACK :

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

VACUUM APPLICATIONS :

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

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

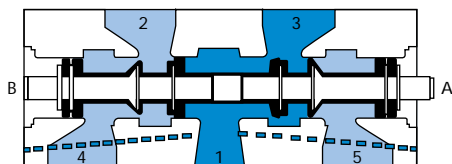
For dual pressure, single exhaust type valves, vacuum should be connected to port #1 (Inlet) and ports #4 & #5 (Exhausts) to atmosphere.

SELECTOR APPLICATIONS :

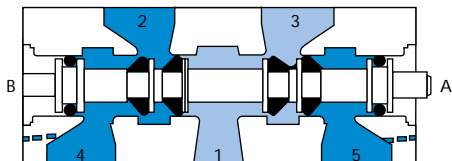
Use an External Pilot model as described above, if both pressures are below the minimum pilot pressure; otherwise use an Internal Pilot model. In either case, use a single pressure model and connect the higher pressure to port #1 (Inlet) and the lower pressure to port #4 (Exhaust) if using cylinder port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

SPOOL CONFIGURATIONS

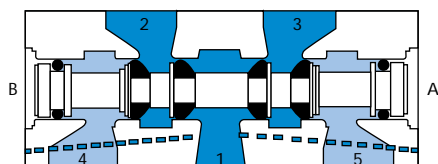
2-POSITION SGL. PRESSURE (SPOOL #12184)
B ACTUATED SHOWN



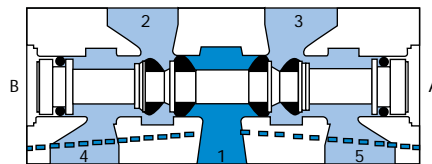
2-POSITION DUAL PRESSURE
(SPOOL ASSY. #10266) B ACTUATED SHOWN



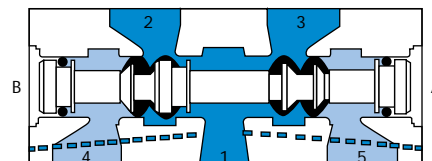
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(SPOOL ASSY. #S-00004) CENTER POSITION SHOWN



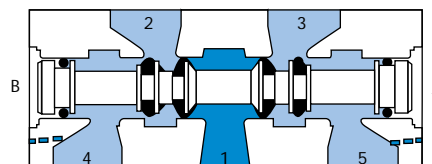
3-POSITION SGL. PRESS. OPEN CENTER
(SPOOL ASSY. #S-00003) CENTER POSITION SHOWN



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



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



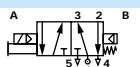
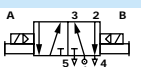
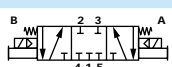
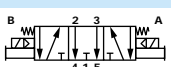
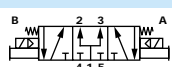
Function	Port size	Flow (Max)	Individual mounting
5/2 - 5/3	1/4"	1.4 C _v	inline

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
						
1/4" NPTF	Internal	811C-PM- XXYZZ -152	821C-PM- XXYZZ -152	825C-PM- XXYZZ -552	825C-PM- XXYZZ -652	825C-PM- XXYZZ -852
	External	812C-PM- XXYZZ -112	822C-PM- XXYZZ -112	826C-PM- XXYZZ -512	826C-PM- XXYZZ -612	826C-PM- XXYZZ -812

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)			CA	Conduit 1/2" NPS

MODIFICATIONS - N° 0358 - 3/8" inlet and cylinder ports, exhaust ports 1/4"

MODIFICATIONS - N° 1080 - NAMUR interface.

Add mod. N° after valve part n°. - **EXAMPLE** : 811C-PM-111CA-152 Mod. 0358.

OPTIONS

811C-PM-111CA-152

- For 2 position dual pressure : replace by 2.

825C-PM-111CA-852

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

TECHNICAL DATA

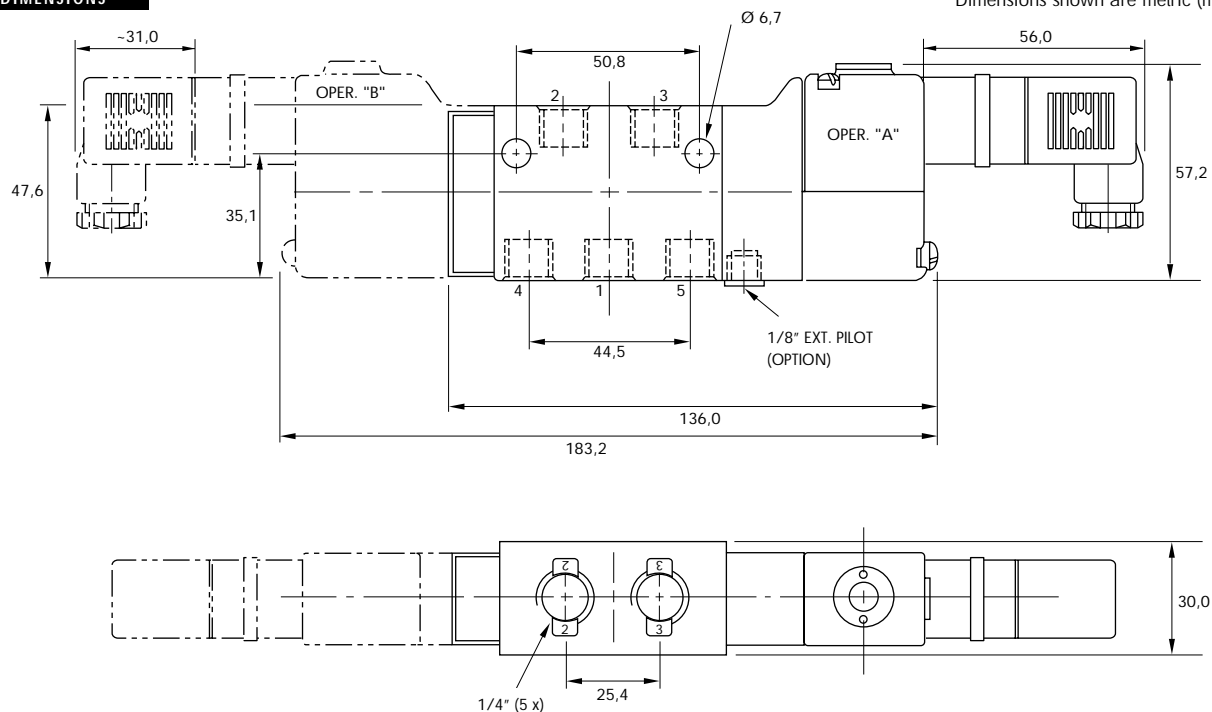
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	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 : • BSPP threads. • NAMUR interface. • Explosion-proof model. • Flow control/muffler (1/4") : 10951

DIMENSIONS

Dimensions shown are metric (mm)



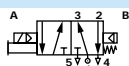
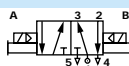
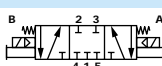
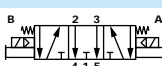
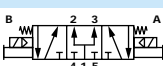
Function	Port size	Flow (Max)	Manifold Mounting
5/2 - 5/3	1/4"	1.4 C _v	stacking body with 1 common port (inlet)

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
					
1/4" NPTF	811C-PM- XXYZZ -132	821C-PM- XXYZZ -132	825C-PM- XXYZZ -532	825C-PM- XXYZZ -632	825C-PM- XXYZZ -832

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/60, 24/50		RA Conduit 3/8" NPS
59 24 VDC (2.5 W)		BA Flying leads (18")
87 24 VDC (17.1 W)		
61 24 VDC (8.5 W)		

MANIFOLD END PLATE KITS (NPTF)*

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

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

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

OPTIONS

811C-PM-111BA-132

- For 2 position dual pressure : replace by 2.

825C-PM-111BA-832

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

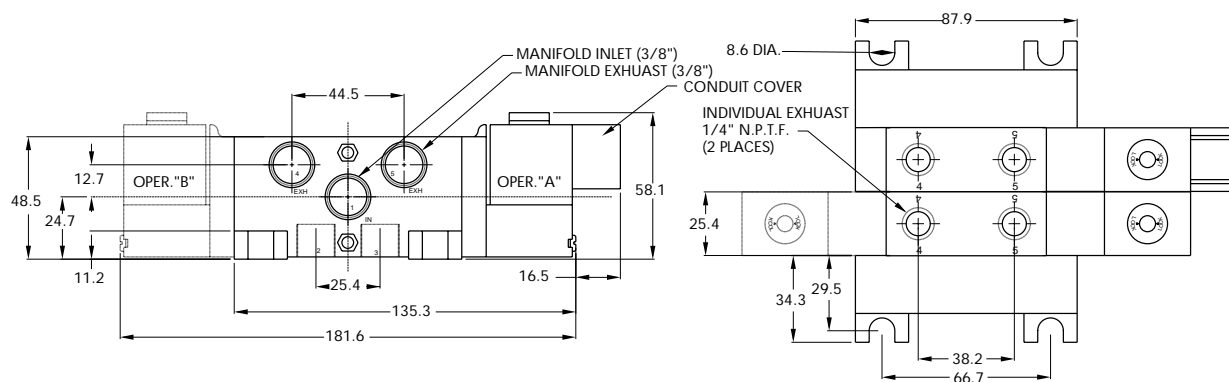
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002

Options :

- BSPP threads. • Dual inlet block: M-08003 • Flow control/muffler (1/4") : 10951

DIMENSIONS

Dimensions shown are metric (mm)



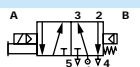
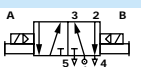
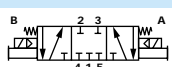
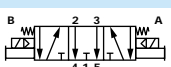
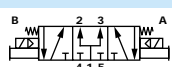
Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	1/4" - 3/8"	1.4 C _v	stacking body with 3 common ports (inlet & exhausts)

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
					
1/4" NPTF	811C-PM- XXYZZ -122	821C-PM- XXYZZ -122	825C-PM- XXYZZ -522	825C-PM- XXYZZ -622	825C-PM- XXYZZ -822
3/8" NPTF	811C-PM- XXYZZ -123	821C-PM- XXYZZ -123	825C-PM- XXYZZ -523	825C-PM- XXYZZ -623	825C-PM- XXYZZ -823

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/60, 24/50		RA Conduit 3/8" NPS
59 24 VDC (2.5 W)		BA Flying leads (18")
87 24 VDC (17.1 W)		
61 24 VDC (8.5 W)		

MANIFOLD END PLATE KITS (NPTF)*

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

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

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

OPTIONS

811C-PM-111RA-122

- For 2 position dual pressure : replace by 2.

825C-PM-111RA-822

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, $\Delta P=1\text{bar}$) :	1/4" : (1.4 C _v), 3/8" : (1.4 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

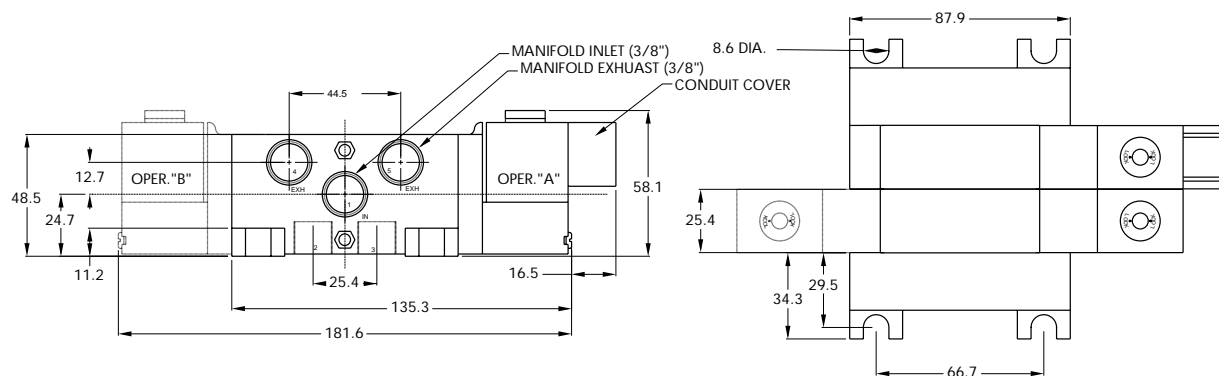
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

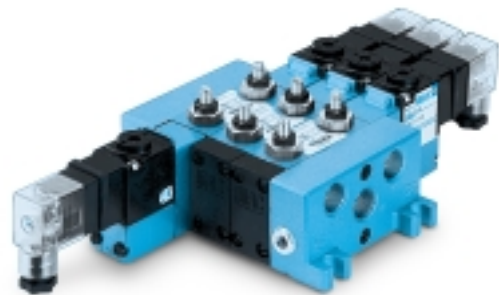
Dimensions shown are metric (mm)



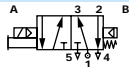
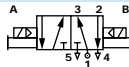
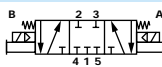
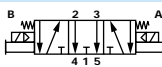
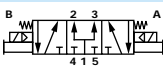
Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	1/4" - 3/8"	1.4 C _v	stacking body with 3 common ports and integral F.C.

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
					
1/4" NPTF	811C-PM- XXYZZ -192	821C-PM- XXYZZ -192	825C-PM- XXYZZ -592	825C-PM- XXYZZ -692	825C-PM- XXYZZ -892
3/8" NPTF	811C-PM- XXYZZ -193	821C-PM- XXYZZ -193	825C-PM- XXYZZ -593	825C-PM- XXYZZ -693	825C-PM- XXYZZ -893

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	JB Rectangular connector
12 240/60, 220/50	2 Locking	JD Rectangular connector with light
22 24/60, 24/50		RA Conduit 3/8" NPS
59 24 VDC (2.5 W)		BA Flying leads (18")
87 24 VDC (17.1 W)		
61 24 VDC (8.5 W)		

MANIFOLD END PLATE KITS (NPTF)*

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

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

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

OPTIONS

811C-PM-111RA-192

- For 2 position dual pressure : replace by 2.

825C-PM-111RA-892

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C _v), 3/8" : (1.4 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

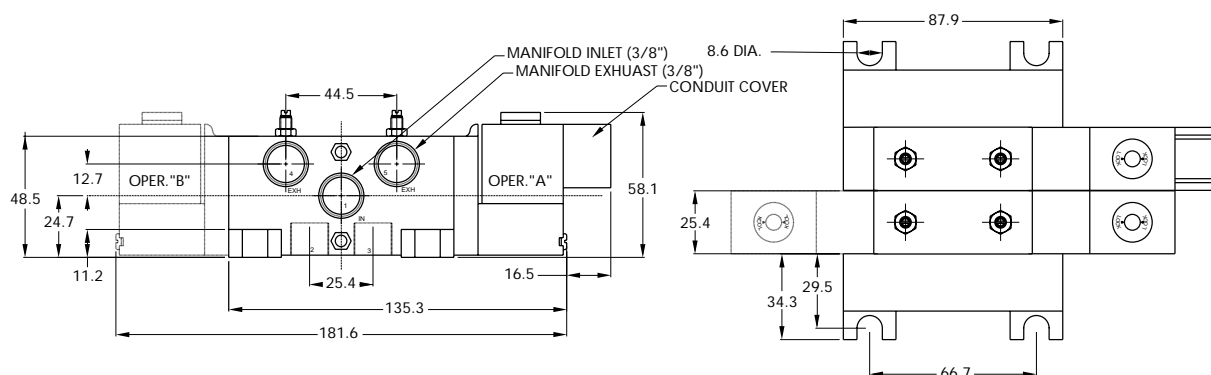
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)



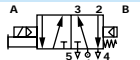
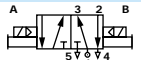
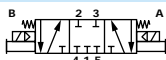
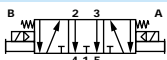
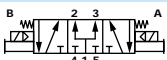
Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	1/4" - 3/8"	1.4 C _v	stacking body with 3 common ports with common conduit

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
					
1/4" NPTF	811C-PM- XXYZZ -142	821C-PM- XXYZZ -142	825C-PM- XXYZZ -542	825C-PM- XXYZZ -642	825C-PM- XXYZZ -842
3/8" NPTF	811C-PM- XXYZZ -143	821C-PM- XXYZZ -143	825C-PM- XXYZZ -543	825C-PM- XXYZZ -643	825C-PM- XXYZZ -843

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	DA Common conduit
12 240/60, 220/50	2 Locking	
22 24/60, 24/50		
59 24 VDC (2.5 W)		
87 24 VDC (17.1 W)		
61 24 VDC (8.5 W)		

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
O387	Indicator light 24 VDC	Single & double solenoid
O295	Indicator light 120 V/60/50	
O296	Indicator light 240 V/60/50	

TO ORDER - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-142 **MOD 0295**

MANIFOLD END PLATE KITS (NPTF)*

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

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

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

OPTIONS

811C-PM-111DA-142

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-842

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C _V), 3/8" : (1.4 C _V)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

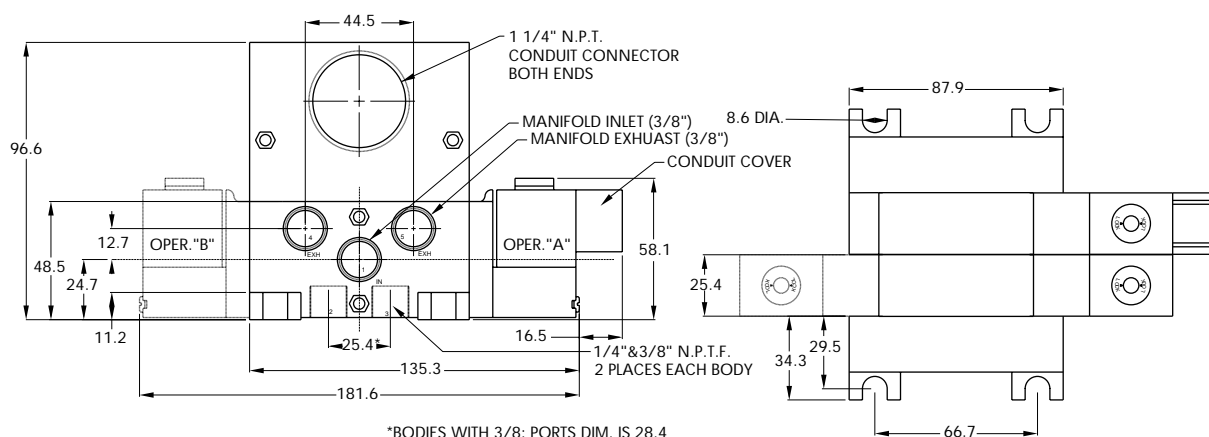
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

- BSPP threads.
- Dual inlet block: M-00014.

DIMENSIONS

Dimensions shown are metric (mm)



*BODIES WITH 3/8" PORTS DIM. IS 28.4

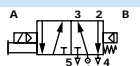
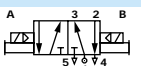
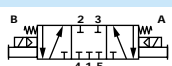
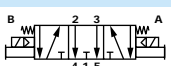
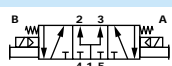
Function	Port size	Flow (Max)	Manifold mounting
5/2 - 5/3	1/4" - 3/8"	1.4 C _v	stacking body with 3 common ports with C. C. & integral exh. F. C.

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
					
1/4" NPTF	811C-PM- XXYZ -162	821C-PM- XXYZ -162	825C-PM- XXYZ -562	825C-PM- XXYZ -662	825C-PM- XXYZ -862
3/8" NPTF	811C-PM- XXYZ -163	821C-PM- XXYZ -163	825C-PM- XXYZ -563	825C-PM- XXYZ -663	825C-PM- XXYZ -863

SOLENOID OPERATOR ►

XX Y ZZ

XX Voltage	Y Manual operator	ZZ Electrical connection
11 120/60, 110/50	1 Non-locking	DA Common conduit
12 240/60, 220/50	2 Locking	
22 24/60, 24/50		
59 24 VDC (2.5 W)		
87 24 VDC (17.1 W)		
61 24 VDC (8.5 W)		

MODIFICATIONS

MOD. N°	DESCRIPTION	MODEL AVAILABILITY
O387	Indicator light 24 VDC	Single & double solenoid
O295	Indicator light 120 V/60/50	
O296	Indicator light 240 V/60/50	

TO ORDER - Add the appropriate modification number after the valve number; **EXAMPLE** : 811C-PM-111DA-162 **MOD 0295**

MANIFOLD END PLATE KITS (NPTF)*

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

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

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

OPTIONS

811C-PM-111DA-162

- For 2 position dual pressure : replace by 2.

825C-PM-111DA-862

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

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 20-150 PSI double operator : 10-150 PSI External pilot : vacuum to 200 PSI		
Pilot pressure :	Single operator and 3 positions : 20-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.4 C _v), 3/8" : (1.4 C _v)		
Leak rate :	50 cm ³ /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 VDC (8.5 W)	Energize : 8 ms	De-energize : 10 ms
	120/60	Energize : 5-11 ms	De-energize : 9-16 ms

Spare parts :

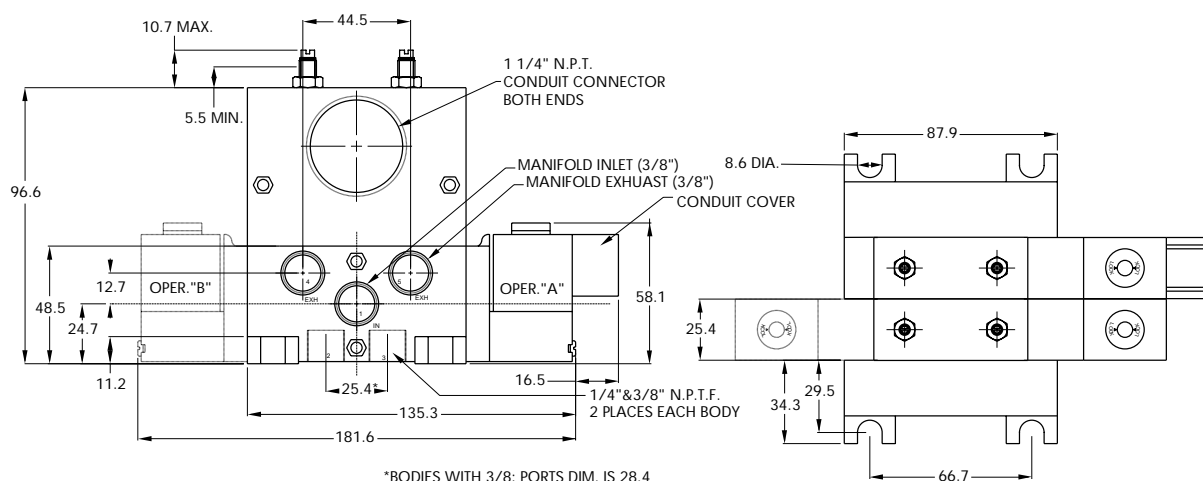
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
- Pilot valve : PME-XXYZZ, including seal 16337. • Mounting screw kit for pilot : N-08003.
- Inlet isolator : N-08001 • Exhaust isolator (x2) : N-08002.

Options :

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

DIMENSIONS

Dimensions shown are metric (mm)

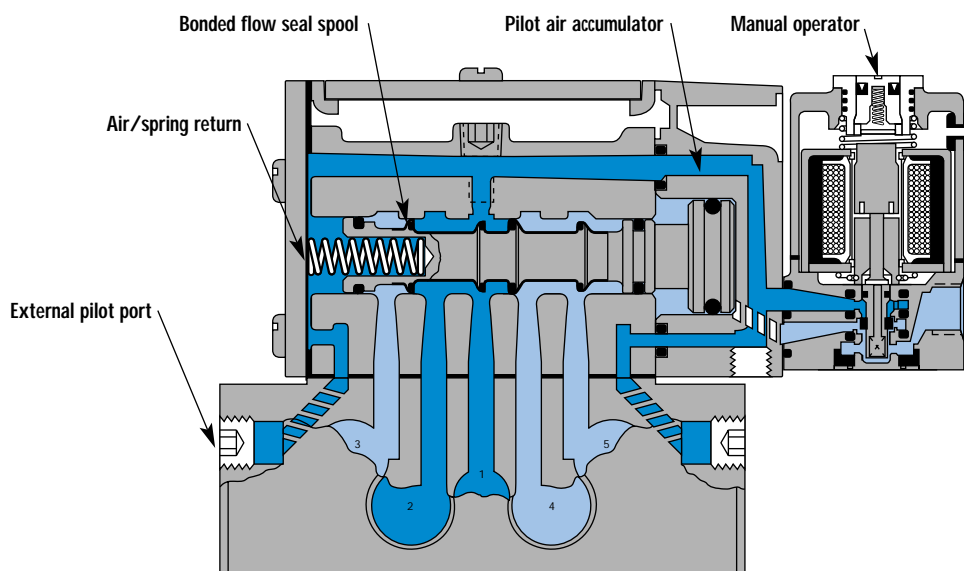


Individual mounting

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 or external pilot models available.

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

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

*Note: 1Bar = 14.5 PSIG

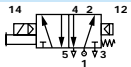
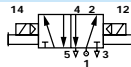
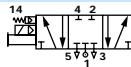
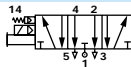
Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	1/4" - 3/8"	1.6 C _v	valve only

OPERATIONAL BENEFITS

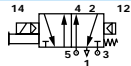
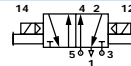
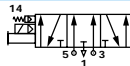
1. Balanced spool, immune to variations of pressure.
2. Short stroke with high flow.
3. The piston (booster) provides maximum shifting forces.
4. Powerful return force thanks to the combination of mechanical and air springs.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
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	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

Note : ISO valves are delivered w/o base. For base code see section 4.

OPTIONS

MV-A1C-A111-PM-**XXYZZ**

- For CNOMO pilot, replace by CM.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.



TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/4" : (1.6 C _v), 3/8" : (1.6 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 11 ms
	120/60	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)

INDIVIDUAL BASE

ISO 1 Manifold mounting

TYPE	A	B
JA & JC	271.6	195.8
JB & JD	294.6	207.3

MANIFOLD BASE

ISO 1 Manifold mounting

TYPE	A	B
JA & JC	271.6	195.8
JB & JD	294.6	207.3

ISO 1 Individual mounting

ISO 1 Individual mounting

TYPE	A	B
JA & JC	271.6	185.8
JB & JD	294.6	197.3

ISO 1 Manifold mounting

ISO 1 Manifold mounting

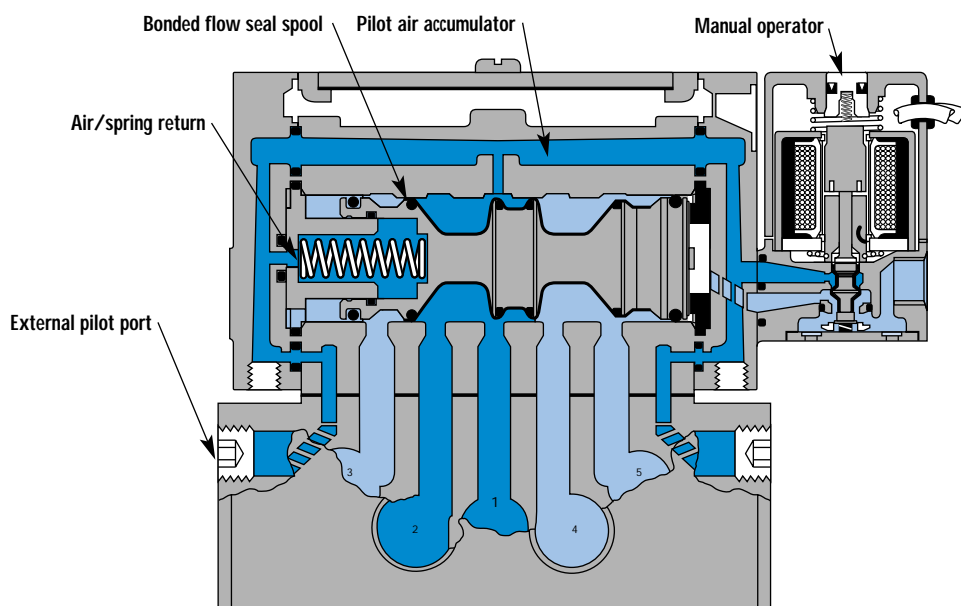
TYPE	A	B
JA & JC	271.6	185.8
JB & JD	294.6	197.3

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 or external pilot models available.

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

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

*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	3/8" - 1/2"	3.0 C _v	valve only


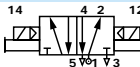
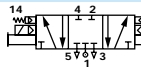
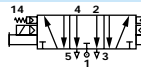
OPERATIONAL BENEFITS

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

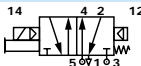
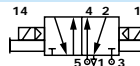
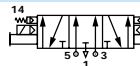


HOW TO ORDER

SINGLE PRESSURE VALVES

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

DUAL PRESSURE VALVES

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

SOLENOID OPERATOR ►

XX Y ZZ

XX	Voltage	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

Note : ISO valves are delivered w/o base. For base code see section 4.

OPTIONS

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

- For CNOMO pilot, replace by CM.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.

TECHNICAL DATA

Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	3/8" : (3.0 C _v), 1/2" : (3.0 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 10 ms	De-energize : 15 ms
	120/60	Energize : 6-15 ms	De-energize : 10-17 ms

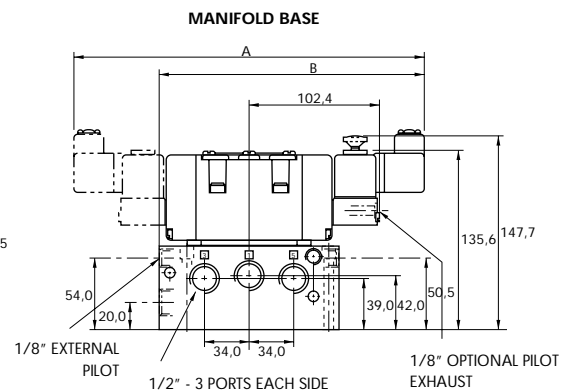
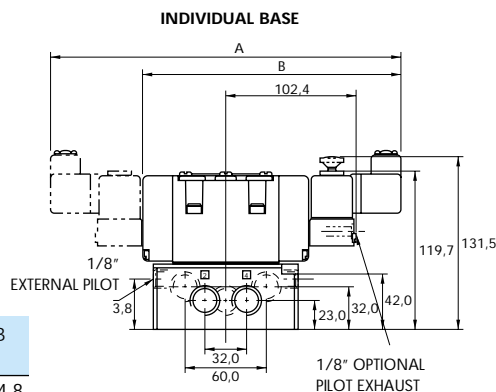
- Spare parts :
- Solenoid operator (power ≥ 4 W) : D1-XXAA, cover mounting screws 35206 and seal 16234.
 - Pilot valve : PME-XXYZZ, including seal 16337. • Pressure seal between valve and base : 16351.
 - Mounting screw valve to base (x4) : 35412.

DIMENSIONS

Dimensions shown are metric (mm)

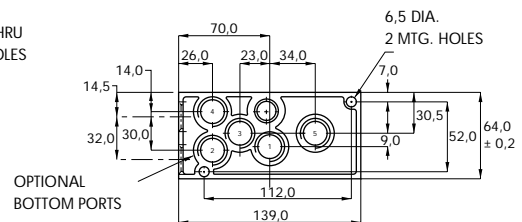
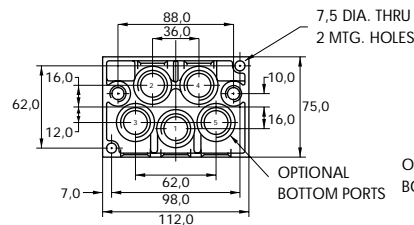
ISO 2 Manifold mounting

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

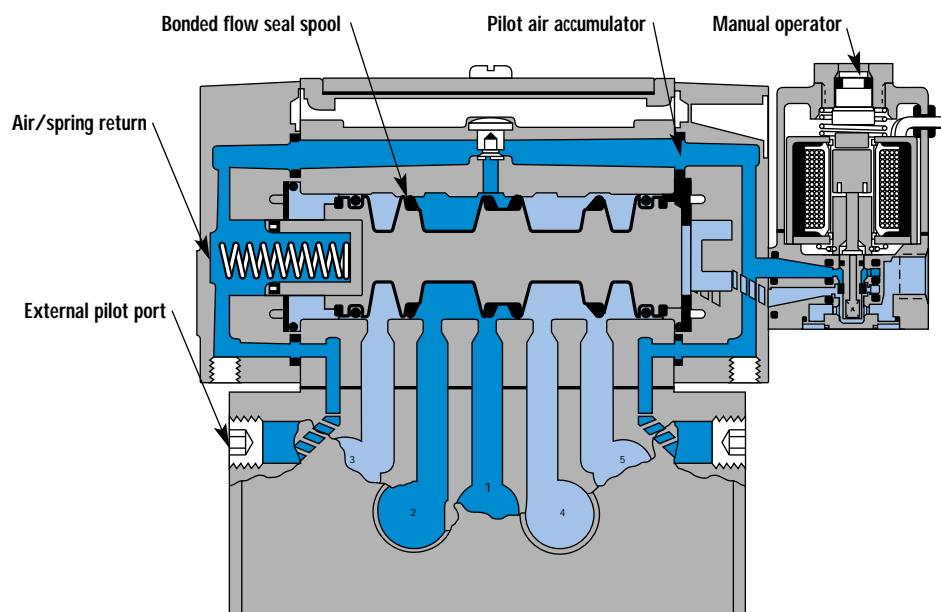


Individual mounting

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 or external pilot models available.

VALVE CONFIGURATIONS AVAILABLE

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

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

SPECIAL APPLICATION INSTRUCTIONS :

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

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

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

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

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

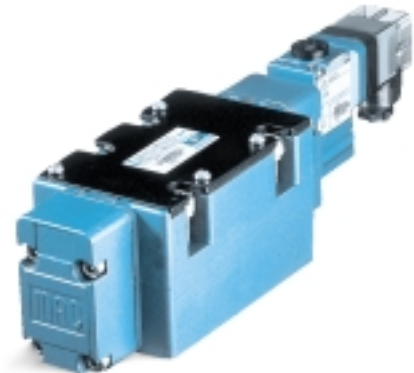
TWO PRESSURE APPLICATIONS - For Internal Pilot models specify the model number for connecting either port #3 or 5, whichever is to be the higher pressure, to the Internal Pilot supply. For external Pilot models, pipe as described above for "External Pilot Application."

*Note: 1Bar = 14.5 PSIG

Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	1/2" - 3/4"	6.3 C _v	valve only

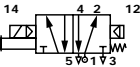
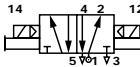
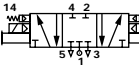
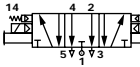
OPERATIONAL BENEFITS

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.

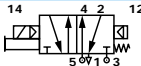
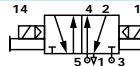
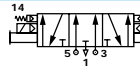


HOW TO ORDER

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	Y	Manual operator	ZZ	Electrical connection
11	120/60, 110/50	1	Non-locking	JB	Rectangular connector
12	240/60, 220/50	2	Locking	JD	Rectangular connector with light
22	24/60, 24/50			JA	Square connector
59	24 VDC (2.5 W)			JC	Square connector with light
87	24 VDC (17.1 W)			BA	Flying leads (18")
61	24 VDC (8.5 W)				

Note : Photo shown with JC connector.

Note : ISO valves are delivered w/o base. For base code see section 4.

OPTIONS

MV-A3B-A111-PM-**XXYZZ**

- For CNOMO pilot, replace by CM.
- For universal spool replace by 6 (2 position, sgl. pressure valves only)
- For use with single pressure sandwich regulator, replace by 5.

TECHNICAL DATA

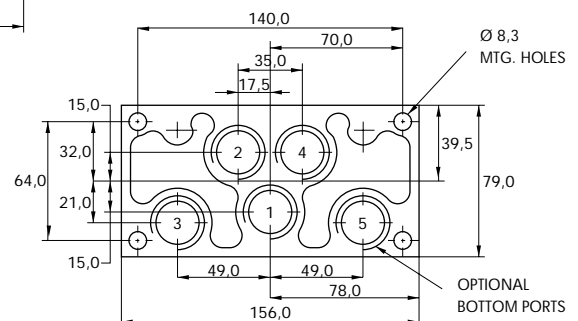
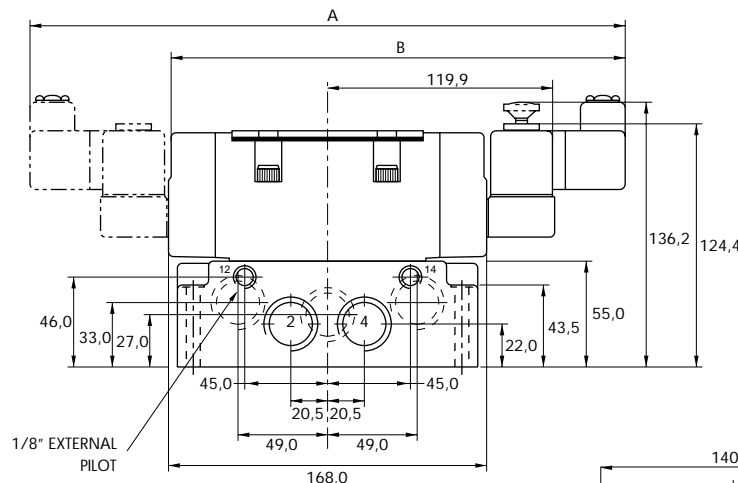
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI double operator : 10-150 PSI External pilot : vacuum to 150 PSI		
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to 50°C)		
Flow (at 6 bar, ΔP=1bar) :	1/2" : (6.3 C _v), 3/4" : (6.3 C _v)		
Leak rate :	100 cm ³ /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 VDC (8.5 W)	Energize : 18 ms	De-energize : 20 ms
	120/60	Energize : 15-25 ms	De-energize : 19-28 ms

Spare parts :

- Solenoid operator (power ≥ 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



Direct solenoid and solenoid pilot operated valves

Individual mounting

valve only	
------------	--

Manifold mounting

valve only	
------------	--

The MAC 125 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

EXAMPLE: MAC 125A-V1B1-PM-111DA-9
MAC 125A-B21A-9

SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

EXTERNAL PILOT APPLICATIONS

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

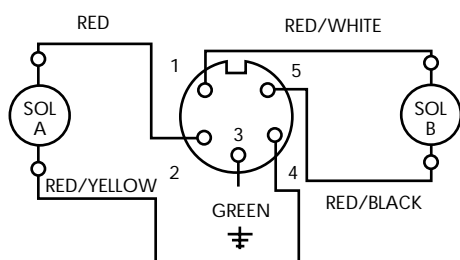
VACUUM APPLICATIONS

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

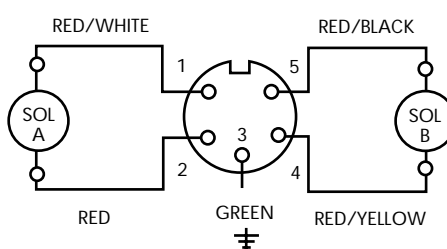
SELECTOR APPLICATIONS

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

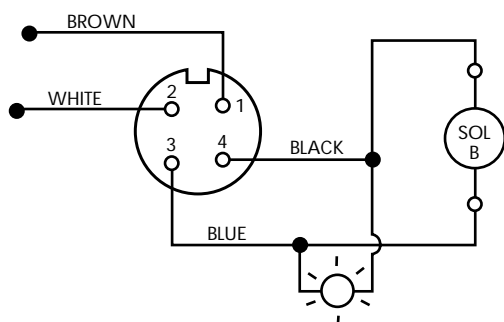
FORD



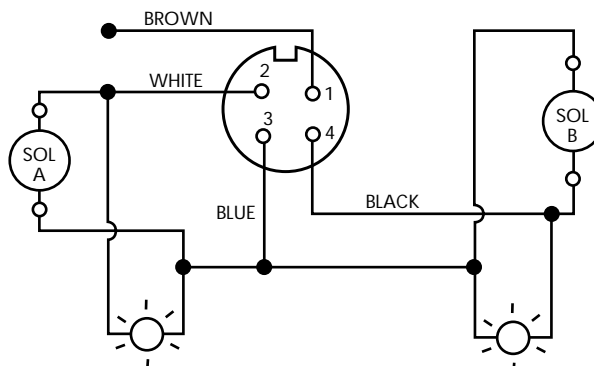
CHRYSLER



4 PIN CONNECTOR : SINGLE



4 PIN CONNECTOR : DOUBLE



Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	1/4" - 3/8"	2.5 C _v	valve only



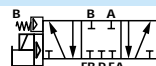

OPERATIONAL BENEFITS

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.

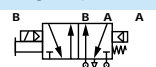
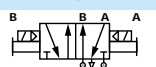
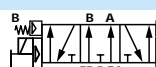


HOW TO ORDER

SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
5 PIN	Internal	MAC125A-V1A2-PM- xx y-DA	MAC125A-V2A2-PM- xx y-DA	MAC125A-V5A2-PM- xx y-DA	MAC125A-V6A2-PM- xx y-DA
(Ford wired)	External	MAC125A-V1A4-PM- xx y-DA	MAC125A-V2A4-PM- xx y-DA	MAC125A-V5A4-PM- xx y-DA	MAC125A-V6A4-PM- xx y-DA
5 PIN	Internal	MAC125A-V1B2-PM- xx y-DA	MAC125A-V2B2-PM- xx y-DA	MAC125A-V5B2-PM- xx y-DA	MAC125A-V6B2-PM- xx y-DA
(Chrysler wired)	External	MAC125A-V1B4-PM- xx y-DA	MAC125A-V2B4-PM- xx y-DA	MAC125A-V5B4-PM- xx y-DA	MAC125A-V6B4-PM- xx y-DA
4 PIN	Internal	MAC125A-V1G2-PM- xx y-DA	MAC125A-V2G2-PM- xx y-DA	MAC125A-V5G2-PM- xx y-DA	MAC125A-V6G2-PM- xx y-DA
MICRO	External	MAC125A-V1G4-PM- xx y-DA	MAC125A-V2G4-PM- xx y-DA	MAC125A-V5G4-PM- xx y-DA	MAC125A-V6G4-PM- xx y-DA
3 PIN	Internal	MAC125A-V1E2-PM- xx y-DA	MAC125A-V2E2-PM- xx y-DA	MAC125A-V5E2-PM- xx y-DA	MAC125A-V6E2-PM- xx y-DA
(Ford wired)	External	MAC125A-V1E4-PM- xx y-DA	MAC125A-V2E4-PM- xx y-DA	MAC125A-V5E4-PM- xx y-DA	MAC125A-V6E4-PM- xx y-DA
5 PIN MICRO	Internal	MAC125A-V1F2-PM- xx y-DA	MAC125A-V2F2-PM- xx y-DA	MAC125A-V5F2-PM- xx y-DA	MAC125A-V6F2-PM- xx y-DA
(Chrysler wired)	External	MAC125A-V1F4-PM- xx y-DA	MAC125A-V2F4-PM- xx y-DA	MAC125A-V5F4-PM- xx y-DA	MAC125A-V6F4-PM- xx y-DA

DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Pressure center
				
5 PIN (Ford wired)	External	MAC125A-V3A4-PM- xx y-DA	MAC125A-V4A4-PM- xx y-DA	MAC125A-V7A4-PM- xx y-DA
5 PIN (Chrysler wired)	External	MAC125A-V3B4-PM- xx y-DA	MAC125A-V4B4-PM- xx y-DA	MAC125A-V7B4-PM- xx y-DA
4 PIN MICRO	External	MAC125A-V3G4-PM- xx y-DA	MAC125A-V4G4-PM- xx y-DA	MAC125A-V7G4-PM- xx y-DA
3 PIN (Ford wired)	External	MAC125A-V3E4-PM- xx y-DA	MAC125A-V4E4-PM- xx y-DA	MAC125A-V7E4-PM- xx y-DA
5 PIN MICRO (Chrysler wired)	External	MAC125A-V3F4-PM- xx y-DA	MAC125A-V4F4-PM- xx y-DA	MAC125A-V7F4-PM- xx y-DA

SOLENOID OPERATOR ►

xx y DA

xx Voltage	y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

Note : Valves are supplied without base. For base code see section 4.

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

TECHNICAL DATA

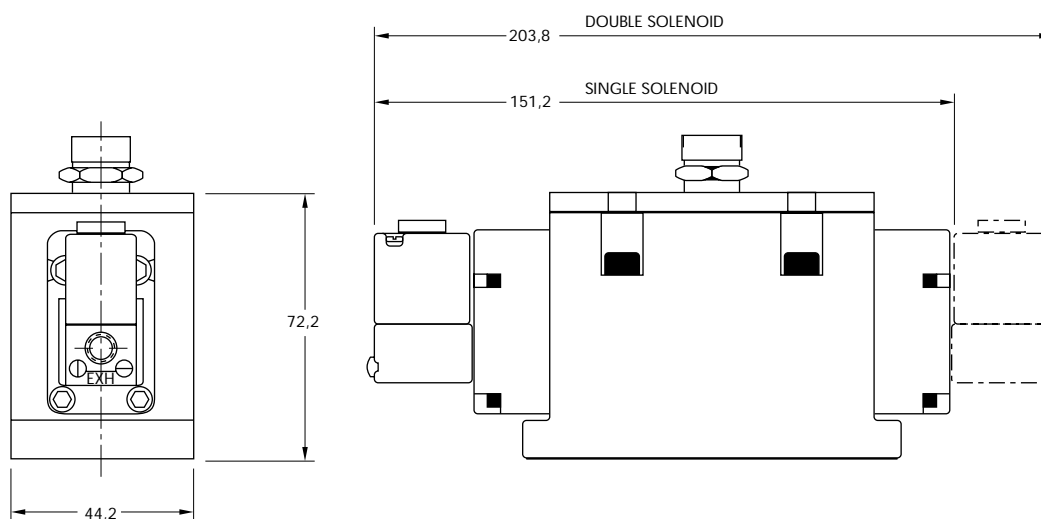
Fluid :	Compressed air, vacuum, inert gases	
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
Filtration :	40 µ	
Temperature range :	0°F to 120°F (-18°C to 50°C)	
Flow (at 6 bar, ΔP=1bar) :	1/4" : (2.2 C _v), 3/8" : (2.5 C _v)	
Leak rate :	100 cm ³ /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	

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 : 16485
- Mounting screw valve to base (x3) : 32296.

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Individual mounting

valve only

Manifold mounting

valve only

The MAC 250 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

EXAMPLE: MAC 250A-V1B1-PM-111DA-9
MAC 250A-B21A-9

SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

EXTERNAL PILOT APPLICATIONS

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

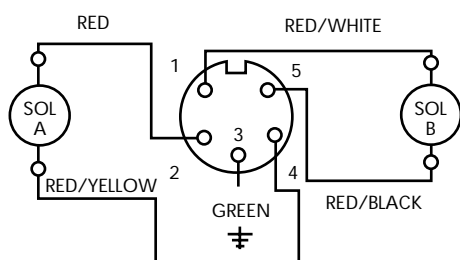
VACUUM APPLICATIONS

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

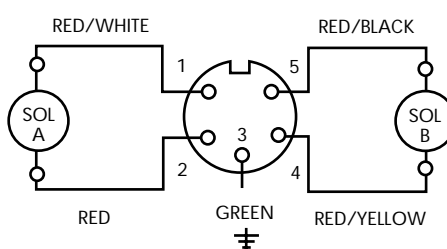
SELECTOR APPLICATIONS

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

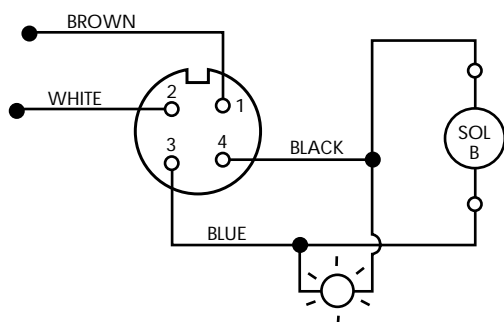
FORD



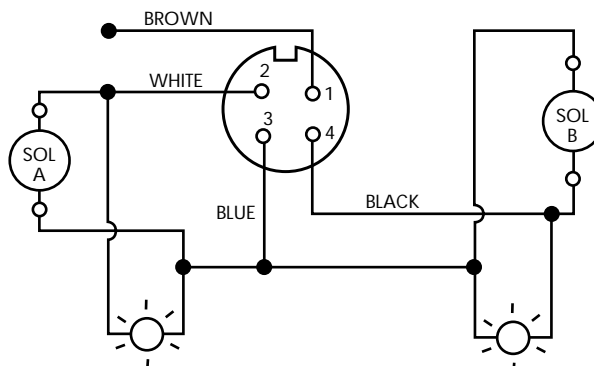
CHRYSLER



4 PIN CONNECTOR : SINGLE



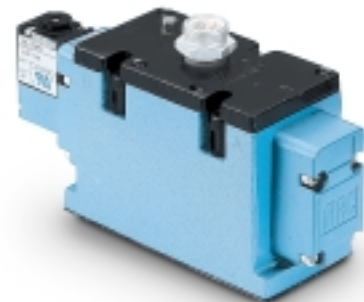
4 PIN CONNECTOR : DOUBLE



Function	Port size	Flow (Max)	Individual mounting & Manifold mounting
5/2 - 5/3	1/2" - 3/4" - 1"	7.0 C _v	valve only




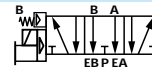
OPERATIONAL BENEFITS

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.

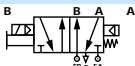
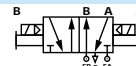
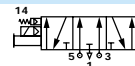


HOW TO ORDER

SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
5 PIN (Ford wired)	Internal	MAC250A-V1A2-PM- xx y-DA	MAC250A-V2A2-PM- xx y-DA	MAC250A-V5A2-PM- xx y-DA	MAC250A-V6A2-PM- xx y-DA
	External	MAC250A-V1A4-PM- xx y-DA	MAC250A-V2A4-PM- xx y-DA	MAC250A-V5A4-PM- xx y-DA	MAC250A-V6A4-PM- xx y-DA
5 PIN (Chrysler wired)	Internal	MAC250A-V1B2-PM- xx y-DA	MAC250A-V2B2-PM- xx y-DA	MAC250A-V5B2-PM- xx y-DA	MAC250A-V6B2-PM- xx y-DA
	External	MAC250A-V1B4-PM- xx y-DA	MAC250A-V2B4-PM- xx y-DA	MAC250A-V5B4-PM- xx y-DA	MAC250A-V6B4-PM- xx y-DA
4 PIN MICRO	Internal	MAC250A-V1G2-PM- xx y-DA	MAC250A-V2G2-PM- xx y-DA	MAC250A-V5G2-PM- xx y-DA	MAC250A-V6G2-PM- xx y-DA
	External	MAC250A-V1G4-PM- xx y-DA	MAC250A-V2G4-PM- xx y-DA	MAC250A-V5G4-PM- xx y-DA	MAC250A-V6G4-PM- xx y-DA
3 PIN (Ford wired)	Internal	MAC250A-V1E2-PM- xx y-DA	MAC250A-V2E2-PM- xx y-DA	MAC250A-V5E2-PM- xx y-DA	MAC250A-V6E2-PM- xx y-DA
	External	MAC250A-V1E4-PM- xx y-DA	MAC250A-V2E4-PM- xx y-DA	MAC250A-V5E4-PM- xx y-DA	MAC250A-V6E4-PM- xx y-DA
5 PIN MICRO (Chrysler wired)	Internal	MAC250A-V1F2-PM- xx y-DA	MAC250A-V2F2-PM- xx y-DA	MAC250A-V5F2-PM- xx y-DA	MAC250A-V6F2-PM- xx y-DA
	External	MAC250A-V1F4-PM- xx y-DA	MAC250A-V2F4-PM- xx y-DA	MAC250A-V5F4-PM- xx y-DA	MAC250A-V6F4-PM- xx y-DA

DUAL PRESSURE VALVES (WITH LIGHTS)

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

SOLENOID OPERATOR ►

xx Y DA

xx Voltage	Y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

Note : Valves are supplied without base. For base code see section 4.

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

TECHNICAL DATA

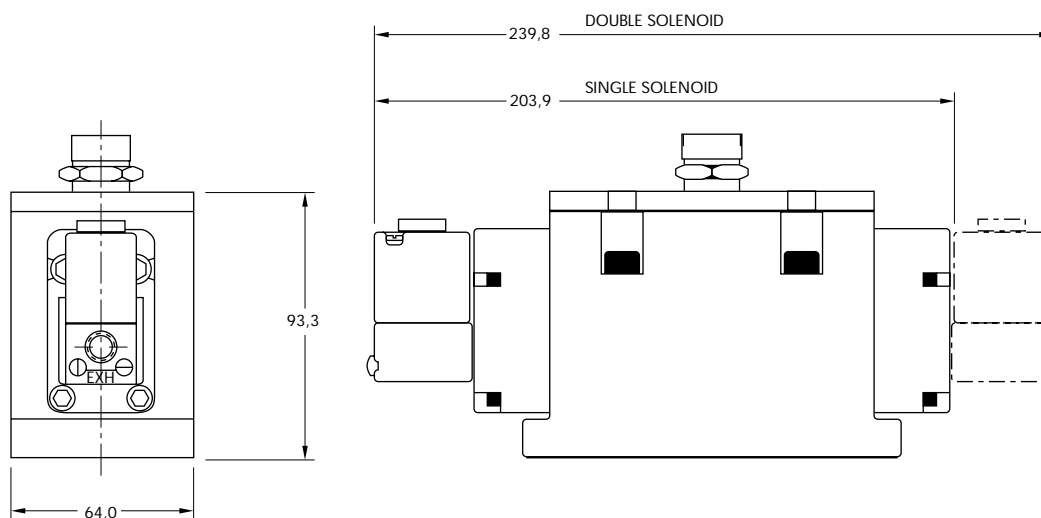
Fluid :	Compressed air, vacuum, inert gases	
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
Filtration :	40 µ	
Temperature range :	0°F to 120°F (-18°C to 50°C)	
Flow (at 6 bar, ΔP=1bar) :	1/2" : (6.3 C _v), 3/4" : (6.4 C _v), 1" : (7.0 C _v)	
Leak rate :	100 cm ³ /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	

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 : 16487
- Mounting screw valve to base (x3) : 32346.

DIMENSIONS

Dimensions shown are metric (mm)





Direct solenoid and solenoid pilot operated valves

Individual mounting

valve only	
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The MAC 500 series is designed to interface with the Ford/Chrysler standard base. This series is available in the following configurations:

- single or double solenoid
- 2 or 3 position
- single or dual pressure
- with or without indicator lights
- various electrical connections and manual operations

Valves and bases must be ordered separately. These may be assembled prior to shipping by adding the suffix -9 after the valve code.

EXAMPLE: MAC 500A-V1B1-PM-111DA-9
MAC 500A-B21A-9

SPECIAL APPLICATION INSTRUCTIONS

The 'A' cylinder port is normally open. On a spring return valve, the spring is the 'A' operator, the solenoid the 'B' operator. Energizing the 'B' operator pressurizes the 'B' port; energizing the 'A' operator pressurizes the 'A' port.

EXTERNAL PILOT APPLICATIONS

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

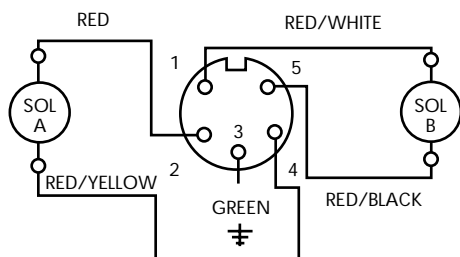
VACUUM APPLICATIONS

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

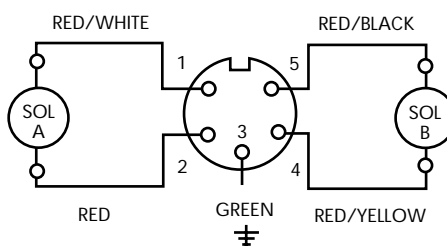
SELECTOR APPLICATIONS

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

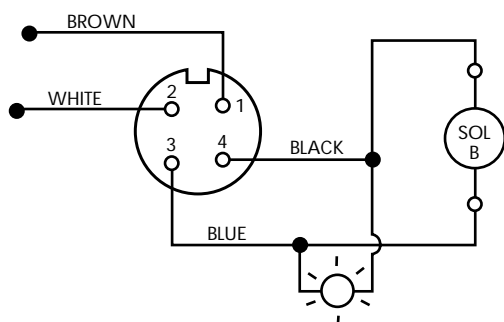
FORD



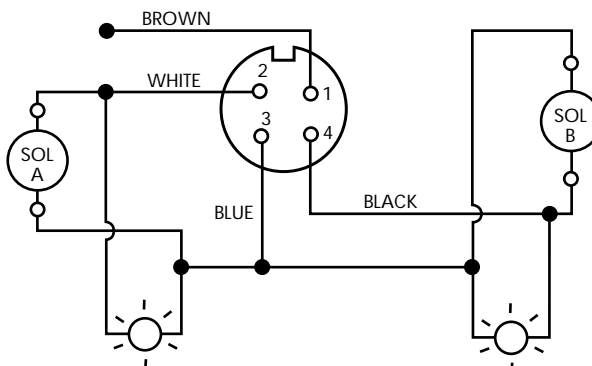
CHRYSLER



4 PIN CONNECTOR : SINGLE



4 PIN CONNECTOR : DOUBLE



Function	Port size	Flow (Max)	Individual mounting
5/2 - 5/3	1" - 1 1/4"	11.2 C _v	valve only



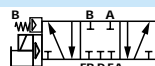

OPERATIONAL BENEFITS

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.

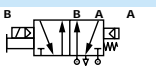
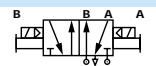


HOW TO ORDER

SINGLE PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center
					
5 PIN	Internal	MAC500A-V1A2-PM- xx y-DA	MAC500A-V2A2-PM- xx y-DA	MAC500A-V5A2-PM- xx y-DA	MAC500A-V6A2-PM- xx y-DA
(Ford wired)	External	MAC500A-V1A4-PM- xx y-DA	MAC500A-V2A4-PM- xx y-DA	MAC500A-V5A4-PM- xx y-DA	MAC500A-V6A4-PM- xx y-DA
5 PIN	Internal	MAC500A-V1B2-PM- xx y-DA	MAC500A-V2B2-PM- xx y-DA	MAC500A-V5B2-PM- xx y-DA	MAC500A-V6B2-PM- xx y-DA
(Chrysler wired)	External	MAC500A-V1B4-PM- xx y-DA	MAC500A-V2B4-PM- xx y-DA	MAC500A-V5B4-PM- xx y-DA	MAC500A-V6B4-PM- xx y-DA
4 PIN	Internal	MAC500A-V1G2-PM- xx y-DA	MAC500A-V2G2-PM- xx y-DA	MAC500A-V5G2-PM- xx y-DA	MAC500A-V6G2-PM- xx y-DA
MICRO	External	MAC500A-V1G4-PM- xx y-DA	MAC500A-V2G4-PM- xx y-DA	MAC500A-V5G4-PM- xx y-DA	MAC500A-V6G4-PM- xx y-DA
3 PIN	Internal	MAC500A-V1E2-PM- xx y-DA	MAC500A-V2E2-PM- xx y-DA	MAC500A-V5E2-PM- xx y-DA	MAC500A-V6E2-PM- xx y-DA
(Ford wired)	External	MAC500A-V1E4-PM- xx y-DA	MAC500A-V2E4-PM- xx y-DA	MAC500A-V5E4-PM- xx y-DA	MAC500A-V6E4-PM- xx y-DA
5 PIN MICRO	Internal	MAC500A-V1F2-PM- xx y-DA	MAC500A-V2F2-PM- xx y-DA	MAC500A-V5F2-PM- xx y-DA	MAC500A-V6F2-PM- xx y-DA
(Chrysler wired)	External	MAC500A-V1F4-PM- xx y-DA	MAC500A-V2F4-PM- xx y-DA	MAC500A-V5F4-PM- xx y-DA	MAC500A-V6F4-PM- xx y-DA

DUAL PRESSURE VALVES (WITH LIGHTS)

Electrical connector	Pilot air	5/2 Single operator	5/2 Double operator
			
5 PIN (Ford wired)	External	MAC500A-V3A4-PM- xx y-DA	MAC500A-V4A4-PM- xx y-DA
5 PIN (Chrysler wired)	External	MAC500A-V3B4-PM- xx y-DA	MAC500A-V4B4-PM- xx y-DA
4 PIN MICRO	External	MAC500A-V3G4-PM- xx y-DA	MAC500A-V4G4-PM- xx y-DA
3 PIN (Ford wired)	External	MAC500A-V3E4-PM- xx y-DA	MAC500A-V4E4-PM- xx y-DA
5 PIN MICRO (Chrysler wired)	External	MAC500A-V3F4-PM- xx y-DA	MAC500A-V4F4-PM- xx y-DA

SOLENOID OPERATOR ►

xx Y DA

xx Voltage	Y Manual operator
11 120/60, 110/50	1 Non-locking
12 240/60, 220/50	2 Locking
22 24/60, 24/50	
59 24 VDC (2.5 W)	
87 24 VDC (17.1 W)	
61 24 VDC (8.5 W)	

Note : Valves are supplied without base. For base code see section 4.

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

TECHNICAL DATA

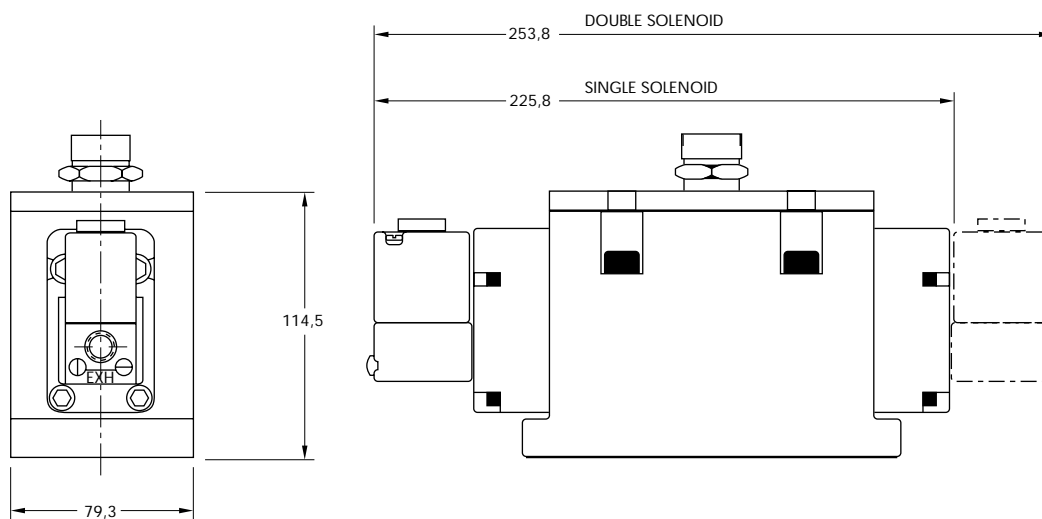
Fluid :	Compressed air, vacuum, inert gases	
Pressure range :	Internal pilot : single operator and 3 positions : 25-150 PSI	double operator : 10-150 PSI
	External pilot : vacuum to 150 PSI	
Pilot pressure :	Single operator and 3 positions : 25-150 PSI Double operator : 10-150 PSI	
Lubrication :	Not required, if used select a medium aniline point lubricant (between 180°F to 210°F)	
Filtration :	40 µ	
Temperature range :	0°F to 120°F (-18°C to 50°C)	
Flow (at 6 bar, ΔP=1bar) :	1" : (11.0 C _v), 1 1/4" : (11.2 C _v)	
Leak rate :	100 cm ³ /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	

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 : 16535
- Mounting screw valve to base (x3) : 32434.

DIMENSIONS

Dimensions shown are metric (mm)





Section 8

Options



0 p t i o n s

Codification table for voltages / Manual operator / Electrical connection / Wire length

VALVE CODE ➤ -XX Y ZZ (-VV)
1 2 3 4

OPTIONS AVAILABLE FOR	OPTIONS AVAILABLE FOR
<div>- valves type 100 Series</div> <div>- pilot valves "CNOMO"</div>	<div>- valves type 200 Series</div>
<div>- Pilot operated valves with pilots type 100 Series</div> <div>Series : 55 - 56 - 700 - 800 - 900</div> <div>- 6300 - 6500 - 6600 - 1300</div> <div>- ISO 1 - ISO 2 - ISO 3.</div> <div>- MAC 125 - MAC 250 - MAC 500</div>	<div>- pilot operated valves with pilots type 200 Series</div> <div>Series : 200 - 57 - 58 - 59.</div>
<div>- Pilot operated valves with pilots "CNOMO"</div> <div>Series : ISO1 - ISO2 - ISO3</div>	

Used on valve series: 100, 55, 56, 700, 800, 900, 6300, 6500, 6600, 1300, MVA1C, MVA2B, MVA3B, MAC125, MAC250, MAC500.

1. VOLTAGE (100 Serie type coil)

- XX Y ZZ	VOLTAGE
11	120/60, 110/50
12	240/60, 220/50
13	100/60, 100/50
15	200/60, 200 /50
16	10/60
20	6/60
21	12/50, 12/60
22	24/60, 24/50
23	32/60, 32/50
24	48/60, 42/50
26*	380/50, 440/50, 440/60, 480/60
29	220/60
34	127/50, 120/50
35	48/50
36	16/60
B1	24/50
50	24 VDC (6 W)
51	24 VDC (4 W)
54	12 VDC (4 W)
55	12 VDC (6 W)
57	12 VDC (2.5 W)
59	24 VDC (2.5 W)
60	12 VDC (8.5 W)
61	24 VDC (8.5 W)
64	6 VDC (6 W)
65	32 VDC (7 W)
66	48 VDC (5.8 W)
67	64 VDC (7.5 W)
68	120 VDC (6.4 W)
69*	220 VDC (8.7 W), 250 VDC (11.2 W)
75	90 VDC (8.8 W)
76*	100 VDC (6.9 W)
84*	125 VDC (10.9 W)
87*	24 VDC (17.1 W)
88*	12 VDC (17.4 W)
89*	36 VDC (18.8 W)
90	28 VDC (8.2 W)
91*	6 VDC (10.6 W)
92	190 VDC (6.5 W)
94	3 VDC (7 W)
95	38 VDC (6.4 W)
A1	24 VDC (1 W)
A2	12 VDC (1 W)
A3	9 VDC (1 W)

MOD. DD01 : Protection diode (DC) - MAX. 8.5W

MOD. MOV1 : Protection varistor (AC) - MAX. 8.5W

* Voltages are CLSF only

Used on valve series: 200, 57, 58, 59.

1. VOLTAGE (200 Serie type coil)

- XX Y ZZ	VOLTAGE
11	120/60, 110/50, 24 VDC (6 W)
12	240/60, 220/50
13	100/60, 100/50
14	200/60, 200/50
20	6/60
21	12/60
22	24/60, 24/50
23	32/60, 32/50
24	48/60, 42/50
25	240/50
26	480/60, 440/50
27	127/60
28	415/50
29	220/60
30	380/50
31	550/60, 550/50
32	120/60, 110/50
33	600/60
34	127/50
35	48/50
50	24 VDC (6 W)
51	24 VDC (4.5 W)
52	24 VDC (2.5 W)
53	24 VDC (1.0 W)
55	12 VDC (6 W)
57	12 VDC (2.5 W)
58	48 VDC (2.5 W)
60	12 VDC (9.5 W)
61	24 VDC (8.5 W)
64	6 VDC (8.5 W)
65	32 VDC (10 W)
66	48 VDC (11.5 W)
67	64 VDC (10.5 W)
68	120 VDC (12.3 W)
69	250 VDC (9.2 W)
71	8 VDC (8.2 W)
72	24 VDC (12 W)
73	198 VDC (10 W)
74	72 VDC (11.3 W)
75	90 VDC (11.3 W)
76	100 VDC (9 W)
77	220 VDC (10 W), 230 VDC (11.6 W)
78*	24 VDC (24 W)
80	55 VDC (10.6 W)
82	170 VDC (11.1 W)
83	15 VDC (8.1 W)
84	125 VDC (10 W)
86	36 VDC (11 W)
93*	12 VDC (24 W)

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

- XX Y ZZ	MANUAL OPERATOR		
0	No operator	5*	No Operator with Light
1	Non-locking recessed	6*	Non-Locking Recessed with Light
2	Locking recessed	7*	Locking Recessed with Light
3	Non-locking extended	8*	Non-Locking Extended with Light
4	Locking extended	9*	Locking Extended with Light

* Lights used with "AA" electrical connection

3. ELECTRICAL CONNECTION (100 Serie type coil)

- 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
FA	Military type 2 PIN
GA	Military type 3 PIN
HA	AA with ground wire
JA*	Square connector
JB	Rectangular connector
JC*	Square connector with light
JD	Rectangular connector with light
JE	Square connector on top (ISO2, ISO3)
JF	Rectangular connector on top (ISO1, ISO2, ISO3)
JG	JE with light
JH	JF with light
JJ	Square connector, male only
JM	Rectangular connector, male only
MA	Electrical common conduit (100 Series-Manifold/900 Series)
MB	Electrical common conduit (100 Series-Stacking/700 Series)
NA	CA with ground wire
NC	CC with ground wire
RA	3/8" NPS conduit

* Not to be used with 100, 800 and 900 Series manifold mounting

3. ELECTRICAL CONNECTION (200 Serie type coil)

- 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
EA	Explosion proof (200 Series)
EA	Explosion proof (57, 58 & 59 Series)
FA	Military type 2 PIN
GA	Military type 3 PIN
HA	AA with ground wire
JA*	Square connector
JC	Square connector with light
JJ	Square connector, male only
NA	CA with ground wire
NC	CC with ground wire

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

- XX Y ZZ (-VV)	WIRE LENGTH
AA	18"
AB	24"
AD	36"
AE	48"
AF	72"
AG	6"
AR	12"
AU	120"
BA	60"
BB	144"
Series 6000 : wire length, from the base	
MOD L024	24"
MOD L036	36"
MOD L048	48"
MOD L060	60"
MOD L072	72"
MOD L120	120"



0 p t i o n s

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

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

OPTIONS AVAILABLE FOR

- Solenoid valves 35, 45 and 82 Series

1. VOLTAGE

- D XX X - X XX VOLTAGE

AA	120/60, 110/50
AB	240/60, 220/50
AC	24/60, 24/50
AD	24/60
AE	200/60
AF	240/50
AG	100/50, 100/60, 110/60
DA	24 VDC (5.4 W)
DB	12 VDC (5.4 W)
DC	12 VDC (7.5 W)
DD	24 VDC (7.3 W)
DE	12 VDC (12.7 W) - CLSFonly
DF	24 VDC (12.7 W) - CLSF only
DK	110 VDC (4.7 W)
DL	64 VDC (6 W)
DM	36 VDC (5.3 W)
DN	6 VDC (6 W)
DP	48 VDC (5.8 W)
DU	24 VDC (6 W)
EA	12 VDC (6 W)
FA	12 VDC (1.8 W)
FB	24 VDC (1.8 W)
FE	12 VDC (2.4 W)
FF	24 VDC (2.4 W)

2. WIRE LENGTH

- D XX X - X XX WIRE LENGTH

A	18"
B	24"
C	36"
D	48"
E	72"
F	96"
J	For external plug-in connector ("J", "K" & "T" type electrical connection)
P	For plug-in valves (82 Series only)

3. MANUAL OPERATOR

- D XX X - X XX MANUAL OPERATOR

0	No operator
1	Non-locking recessed
2	Locking recessed
3	Non-locking extended
4	Locking extended

4. ELECTRICAL CONNECTION

- D XX X - X XX ELECTRICAL CONNECTION

BA	Flying leads
BK	BA with protection diode
BL	BA with protection varistor (M.O.V.)
** CA	1/2" NPS conduit
** CM	1/2" NPS metal conduit
** CN	1/2" NPS metal conduit w/ground
JB	Rectangular connector
JD	Rectangular connector with light
JM	Rectangular connector, male only
KA	Square connector
KB	Square connector with protection diode
KC	Square connector with protection varistor (M.O.V.)
KD	Square connector with light
KE	Square connector with light and protection diode
KF	Square connector with light and protection varistor (M.O.V.)
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-35002-01

45 series : M-45005-01



PRECAUTIONS CONCERNING THE APPLICATION, INSTALLATION AND SERVICE OF MAC VALVES

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

APPLICATION PRECAUTIONS :

INDUSTRIAL USE -

MAC valves are intended for use in industrial pneumatic and/or vacuum systems. They are not intended for consumer use or service. They are general purpose industrial valves with literally thousands of different applications in industrial systems. These products are not inherently dangerous, but they are only a component of an overall system. The system in which they are used must provide adequate safeguards to prevent injury or damage in the event failure occurs, whether it be failure of switches, regulators, cylinders, valves or any other component.

POWER PRESSES -

MAC valves are not designed nor intended to be used to operate and/or control the operation of clutch and/or brake systems on power presses. There are special products on the market for such use.

2-POSITION VALVES -

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

3- POSITION VALVES-

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

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

A. CLOSED CENTER-

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

B. OPEN CENTER-

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

C. PRESSURE CENTER-

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

OPERATING SPECIFICATIONS -

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

MANUAL OPERATORS-

Most MAC valves can be ordered with manual operators. Manual operators when depressed, are designed to shift the valve to the same position as would the corresponding solenoid or remote air pilot operator if it were activated. Care must be

taken to order a type, if any, that will be safe for the physical location of the manual operator in the system. Accidental activation of a manual operator could create a dangerous situation. If intentional or accidental operation of a valve by a manual operator could create a dangerous situation then the "no operator" option should be used.

REMOTE AIR OPERATED VALVES

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

INSTALLATION PRECAUTIONS :

- A. Do not install MAC valves on a machine without first turning off air (bleed system completely) and electricity to the machine.
- B. MAC valves should only be installed by qualified, knowledgeable personnel who understand how the specific valve is to be pneumatically piped and electrically connected (where applicable). Flow paths through the valve are shown in the catalog and on the valve by use of ANSI or ISO type standard graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.

SERVICE PRECAUTIONS :

- A. Do not service or remove from service any MAC valve without first shutting off both the air and electricity to the valve and making certain no pressurized air which could present a hazard is retained in the system.
- B. MAC valves should only be serviced or removed from service by qualified, knowledgeable personnel who understand how the specific valve is piped and used and whether there is air retained in the connecting lines to the valve or electric power still connected to the valve.
- C. MAC valves are never to be stepped on while working on a machine. Damage to the valve, or lines to the valve (either air or electrical lines) or accidental activating of a manual operator on the valve could result in a dangerous situation.

WARNING:

Under no circumstances are Mac valves to be used on power presses for air clutch and/or brake operations where failure of the valve to operate as intended could in any way jeopardize the safety of the operator or any other person. Under no circumstances are Mac valves to be used in any circuit or in any manner intended to prevent unintended operation of any machinery or other equipment where failure of the valve to operate as intended could jeopardize the safety of the operator or any other person. Air valves are not safety devices nor should they be used in safety systems of any type.

LIMITATION OF GUARANTEE

This Guarantee is limited to the replacement or rebuilding of any valve which should fail to operate properly. Valves, under the MAC Guarantee, must be returned (with or without bases) transportation prepaid and received at our factory within the Guarantee period. They will be returned to the customer at the expense of MAC Valves, Inc., and will carry the same guarantee as provided under the Flat Rate Rebuild Program.

DISCLAIMER OF GUARANTEE

No claims for labor, material, time, damage, or transportation are allowable nor will any valve be replaced or rebuilt under this guarantee which has been damaged by the purchaser not in the normal course of its use and maintenance during the warranty period. The guarantee does not apply to loss or damage caused by fire, theft, riot, explosion, labor dispute, act of God, or other causes beyond the control of MAC Valves, Inc. MAC Valves, Inc. shall in no event be liable for remote, special or consequential damages under the MAC Guarantee, nor under any implied warranties, including the implied warranty of merchantability.

The above Guarantee is our manner of extending the engineering and service resources of the MAC Valves, Inc. organization to assure our customer long, and continued satisfaction.