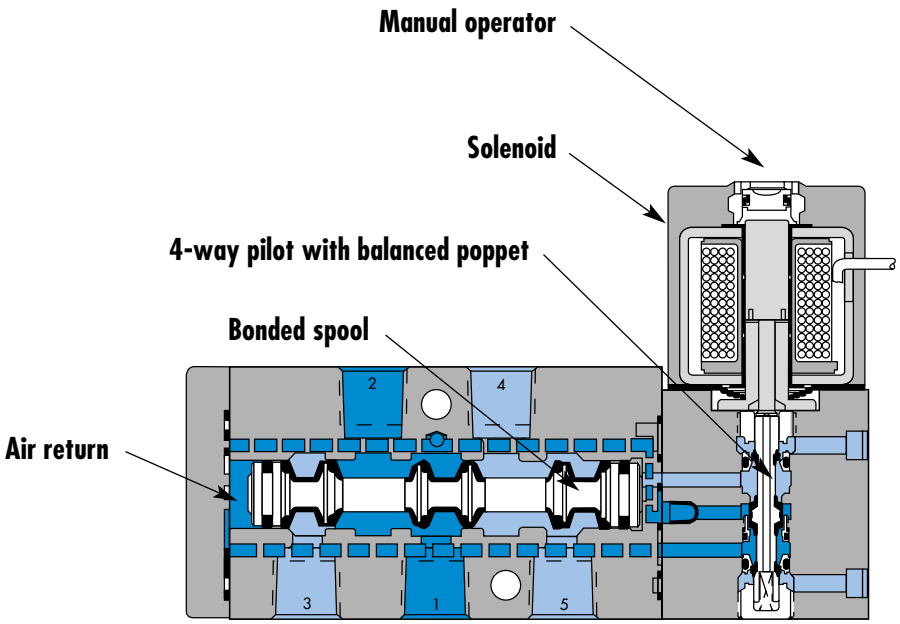
Circuit bar mounting

low profile cylinder ports in valve	low profile cylinder ports in base	mid profile cylinder ports in valve	mid profile - add on style cylinder ports in valve	add-a-unit stations for CBM403A bar	mid profile cylinder ports in base	mid profile - add on style cylinder ports in base	add-a-unit stations for CBM404A bar
high profile cylinder ports in base	high profile - add on style cylinder ports in base	add-a-unit stations for CBM405A bar					



SERIES FEATURES

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

MAC

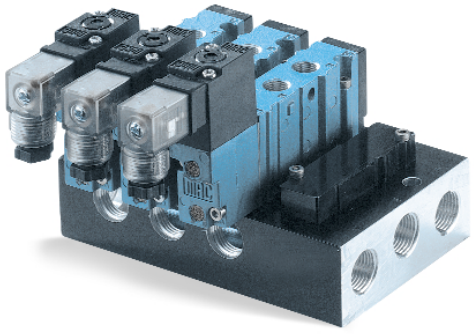
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	low profile cylinder ports in valve

OPERATIONAL BENEFITS

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

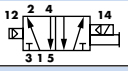
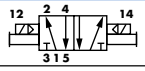
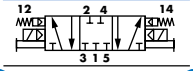
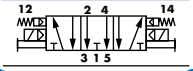
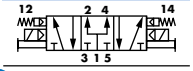
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
						
1/8" BSPP	Internal	○ 411A-COA-DM-D*xxx-xxx*	○ 421A-COA-DM-D*xxx-xxx*	○ 451A-COA-DM-D*xxx-xxx*	○ 461A-COA-DM-D*xxx-xxx*	○ 471A-COA-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOA-DM-D*xxx-xxx*	○ 421A-DOA-DM-D*xxx-xxx*	○ 451A-DOA-DM-D*xxx-xxx*	○ 461A-DOA-DM-D*xxx-xxx*	○ 471A-DOA-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤

D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR **

CBM401A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
3/8" BSPP	Internal	○ CBM401A-00AAB-*xx*	○ CBM401A-00BAB-*xx*	○ CBM401A-02AAB-*xx*	○ CBM401A-02BAB-*xx*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

OPTIONS

411A-AOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 4).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

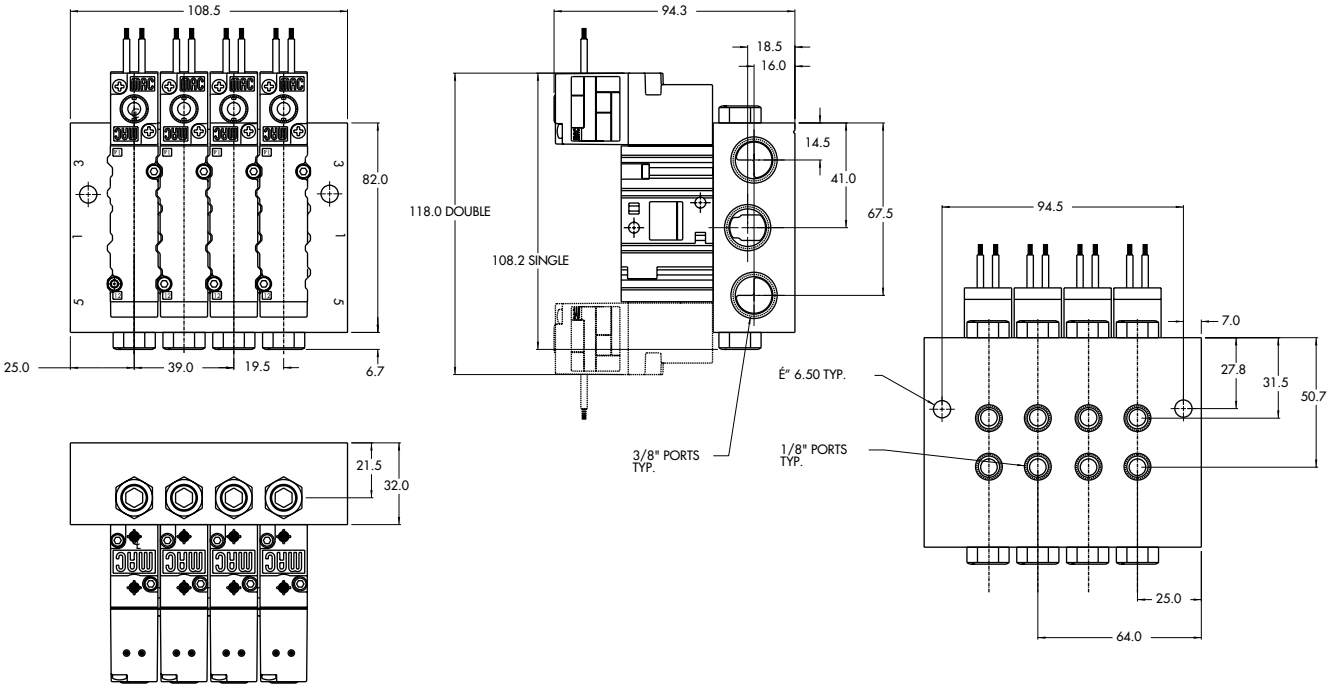
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	1.3 - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04001. • Flow control (x2) : N-04001. • Seal (x2) : 17013-01, (x1) : 17015-01. • Mounting screw (x2) : 35043.

Options : • NPF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



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

MAC

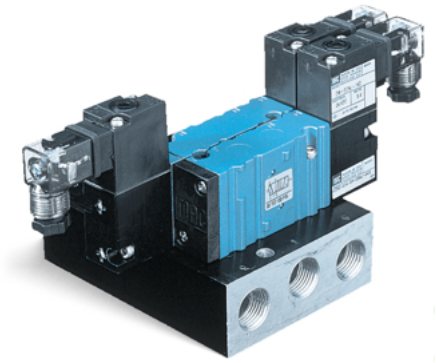
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8"**	**1000 NL/min**	low profile cylinder ports in base

OPERATIONAL BENEFITS

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

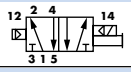
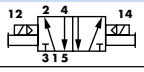
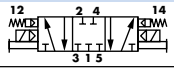
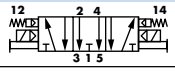
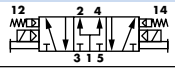
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*XXX-XXX*	○ 423A-OOA-DM-D*XXX-XXX*	○ 453A-OOA-DM-D*XXX-XXX*	○ 463A-OOA-DM-D*XXX-XXX*	○ 473A-OOA-DM-D*XXX-XXX*

SOLENOID OPERATOR ➤ D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR (BOTTOM CYLINDER PORTS) **

CBM402A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
1/8" BSPP	Internal	○ CBM402A-00AAB-*XX*	○ CBM402A-00BAB-*XX*	○ CBM402A-02AAB-*XX*	○ CBM402A-02BAB-*XX*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

OPTIONS

413A-OOA-DM-D*XXX-XXX*

- ☐ clic with memory spring (replace by 6).

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

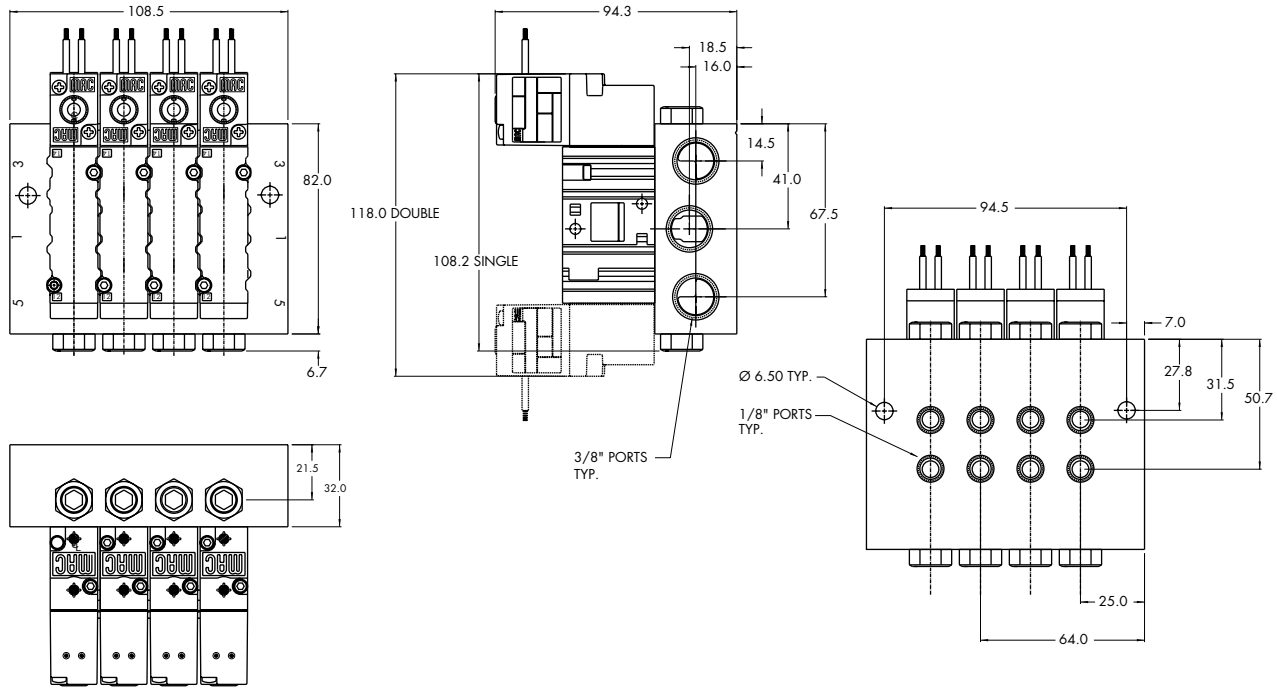
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Flow control (x2) : N-04001. • Seal : 16525. • Mounting screw (x2) : 35043.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC

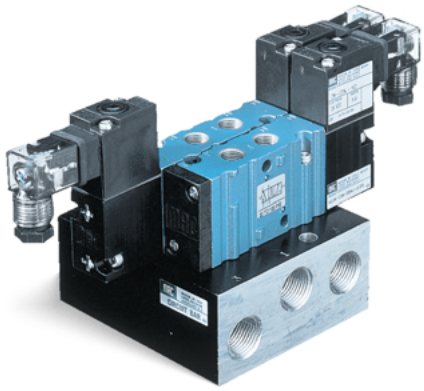
Series **400**

Function	Port size (BSPP)	Flow (Max)	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	mid profile cylinder ports in valve

OPERATIONAL BENEFITS

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

Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
1/8" BSPP	Internal	○ 411A-COA-DM-D*xxx-xxx*	○ 421A-COA-DM-D*xxx-xxx*	○ 451A-COA-DM-D*xxx-xxx*	○ 461A-COA-DM-D*xxx-xxx*	○ 471A-COA-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOA-DM-D*xxx-xxx*	○ 421A-DOA-DM-D*xxx-xxx*	○ 451A-DOA-DM-D*xxx-xxx*	○ 461A-DOA-DM-D*xxx-xxx*	○ 471A-DOA-DM-D*xxx-xxx*
1/8" BSPP	External	○ 411A-COD-DM-D*xxx-xxx*	○ 421A-COD-DM-D*xxx-xxx*	○ 451A-COD-DM-D*xxx-xxx*	○ 461A-COD-DM-D*xxx-xxx*	○ 471A-COD-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOD-DM-D*xxx-xxx*	○ 421A-DOD-DM-D*xxx-xxx*	○ 451A-DOD-DM-D*xxx-xxx*	○ 461A-DOD-DM-D*xxx-xxx*	○ 471A-DOD-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤

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

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR **

CBM403A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
3/8" BSPP	Internal	○ CBM403A-00AAB-*xx*	○ CBM403A-00BAB-*xx*	○ CBM403A-02AAB-*xx*	○ CBM403A-02BAB-*xx*
	Common external	○ CBM403A-00CAB-*xx*	○ CBM403A-00DAB-*xx*	○ CBM403A-02CAB-*xx*	○ CBM403A-02DAB-*xx*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

OPTIONS

411A-AOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 4).

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

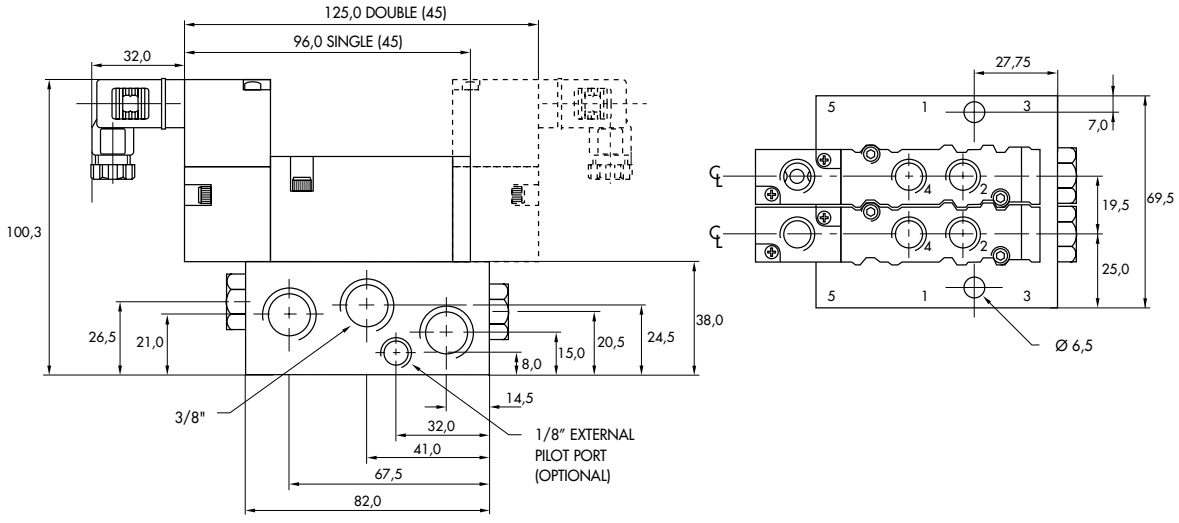
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04001. • Flow control (x2) : N-04001. • Seal (x2) : 17013-01, (x1) : 17015-01.
• Mounting screw (x2) : 35043.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC®

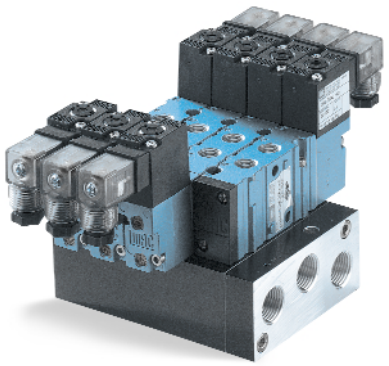
Series **400**

Function	Port size (BSPP)	Flow (Max)	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	mid profile - add on style cylinder ports in valve

OPERATIONAL BENEFITS

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

Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
1/8" BSPP	Internal	○ 411A-COA-DM-D*xxx-xxx*	○ 421A-COA-DM-D*xxx-xxx*	○ 451A-COA-DM-D*xxx-xxx*	○ 461A-COA-DM-D*xxx-xxx*	○ 471A-COA-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOA-DM-D*xxx-xxx*	○ 421A-DOA-DM-D*xxx-xxx*	○ 451A-DOA-DM-D*xxx-xxx*	○ 461A-DOA-DM-D*xxx-xxx*	○ 471A-DOA-DM-D*xxx-xxx*
1/8" BSPP	External	○ 411A-COD-DM-D*xxx-xxx*	○ 421A-COD-DM-D*xxx-xxx*	○ 451A-COD-DM-D*xxx-xxx*	○ 461A-COD-DM-D*xxx-xxx*	○ 471A-COD-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOD-DM-D*xxx-xxx*	○ 421A-DOD-DM-D*xxx-xxx*	○ 451A-DOD-DM-D*xxx-xxx*	○ 461A-DOD-DM-D*xxx-xxx*	○ 471A-DOD-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤

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

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR **

CBM403A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
3/8" BSPP	Internal	○ CBM403A-00ABB-*xx*	○ CBM403A-00BBB-*xx*	○ CBM403A-02ABB-*xx*	○ CBM403A-02BBB-*xx*
	Common external	○ CBM403A-00CBB-*xx*	○ CBM403A-00DBB-*xx*	○ CBM403A-02CBB-*xx*	○ CBM403A-02DBB-*xx*

Number of stations (03=3 stations) ☐
** Other options available. Consult factory.
Note: add-a-unit stations may be added to above bars.

OPTIONS

411A-AOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 4).

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

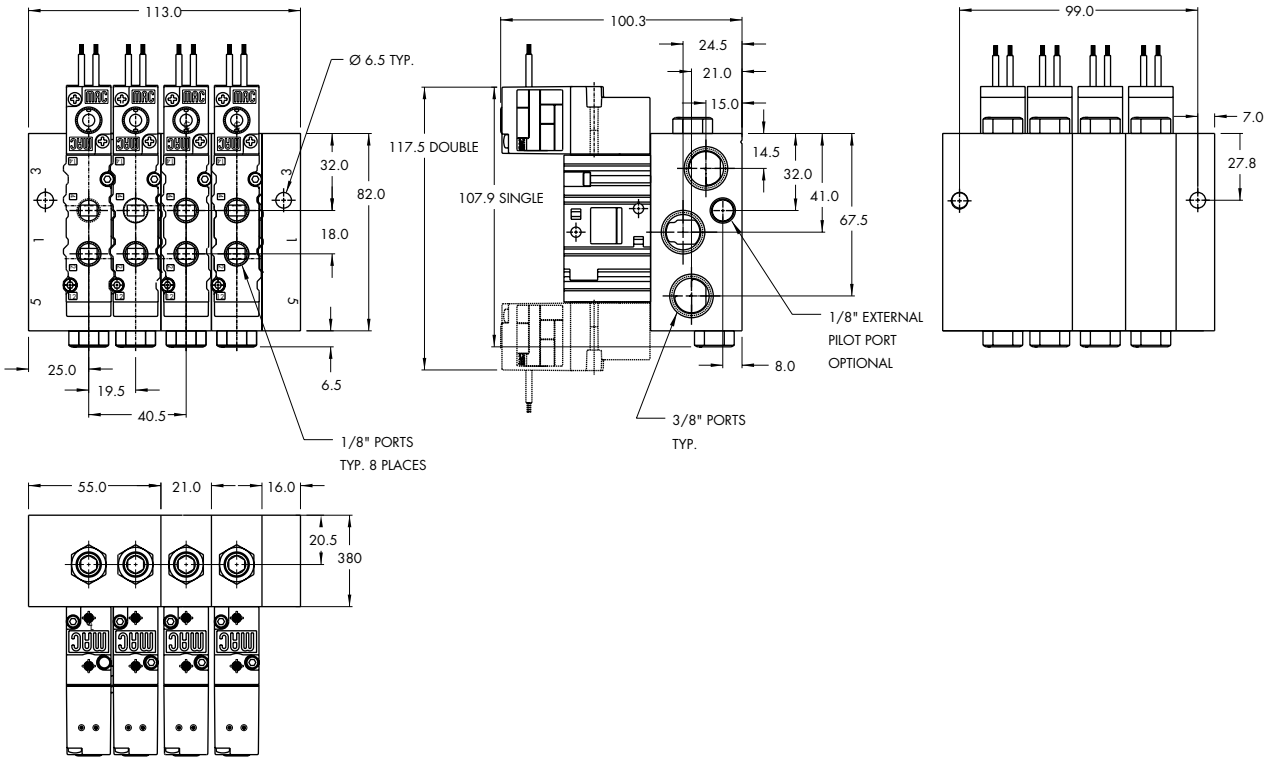
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04001. • Flow control (x2) : N-04001. • Seal (x2) : 17013-01, (x1) : 17015-01.
• Mounting screw (x2) : 35043. • End plate kit : M-04003-01. • End plate kit for common external : M-04004-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



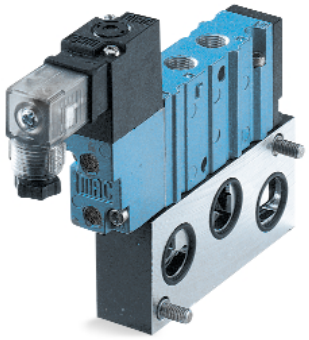
MAC

Series **400**

Function	Port size (BSPP)	Flow (Max)	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	add-a-unit stations for CBM403A bar

OPERATIONAL BENEFITS

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

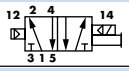
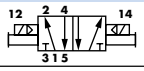
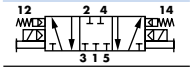
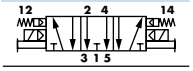
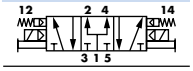


Reset

HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
						
1/8" BSPP	Internal	○ 411A-COA-DM-D*xxx-xxx*	○ 421A-COA-DM-D*xxx-xxx*	○ 451A-COA-DM-D*xxx-xxx*	○ 461A-COA-DM-D*xxx-xxx*	○ 471A-COA-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOA-DM-D*xxx-xxx*	○ 421A-DOA-DM-D*xxx-xxx*	○ 451A-DOA-DM-D*xxx-xxx*	○ 461A-DOA-DM-D*xxx-xxx*	○ 471A-DOA-DM-D*xxx-xxx*
1/8" BSPP	External	○ 411A-COD-DM-D*xxx-xxx*	○ 421A-COD-DM-D*xxx-xxx*	○ 451A-COD-DM-D*xxx-xxx*	○ 461A-COD-DM-D*xxx-xxx*	○ 471A-COD-DM-D*xxx-xxx*
1/4" BSPP		○ 411A-DOD-DM-D*xxx-xxx*	○ 421A-DOD-DM-D*xxx-xxx*	○ 451A-DOD-DM-D*xxx-xxx*	○ 461A-DOD-DM-D*xxx-xxx*	○ 471A-DOD-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤

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

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

CBM403A-xxxxx-xx

HOW TO ORDER CIRCUIT BAR **

Port size	Pilot air	Spacing 21 mm w/o flow controls	Spacing 21 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
3/8" BSPP	Internal	○ CBM403A-01AEB-*xx*	○ CBM403A-01BEB-*xx*	○ CBM403A-02AEB-*xx*	○ CBM403A-02BEB-*xx*
	Common external	○ CBM403A-01CEB-*xx*	○ CBM403A-01DEB-*xx*	○ CBM403A-02CEB-*xx*	○ CBM403A-02DEB-*xx*

Number of stations (01, 02, 03, or 04) ☐

** Other options available. Consult factory.

OPTIONS

411A-AOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 4).

Menu

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

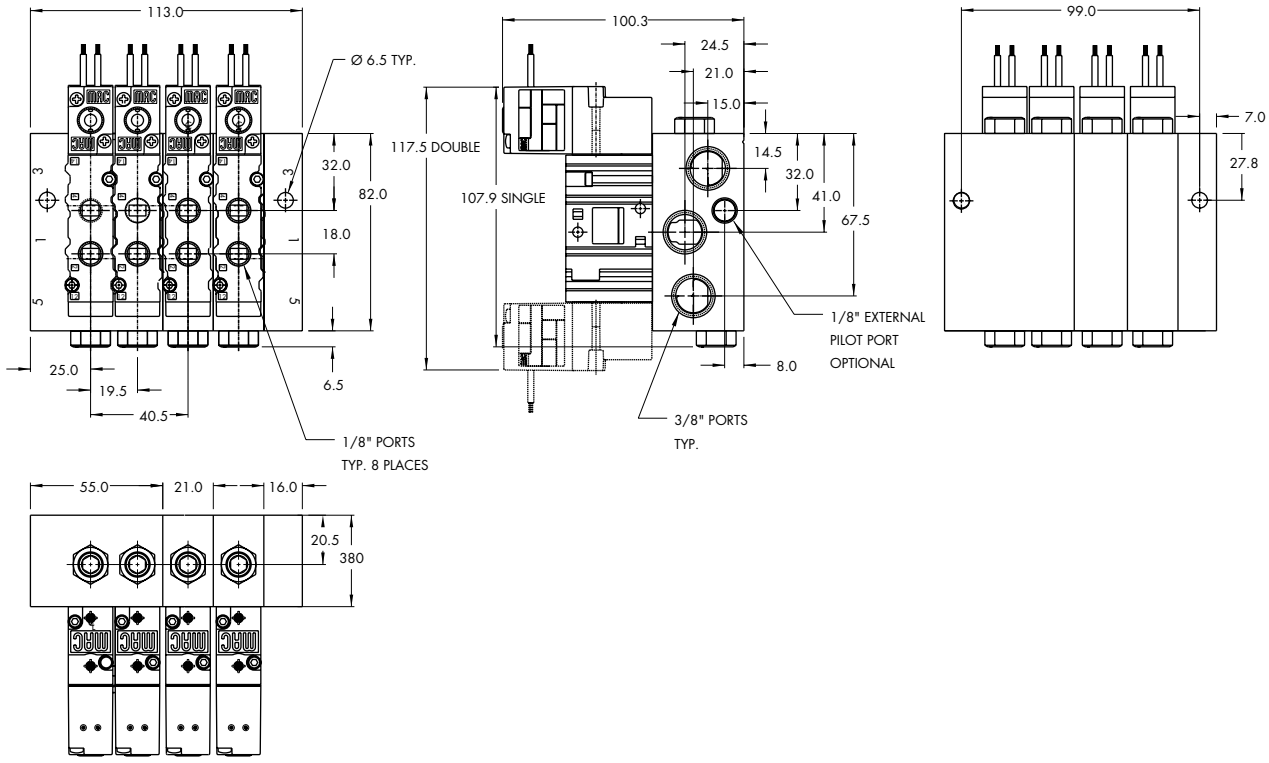
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04001. • Flow control (x2) : N-04001. • Seal (x2) : 17013-01, (x1) : 17015-01.
• Mounting screw (x2) : 35043. • End plate kit : M-04003-01. • End plate kit for common external : M-04004-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC

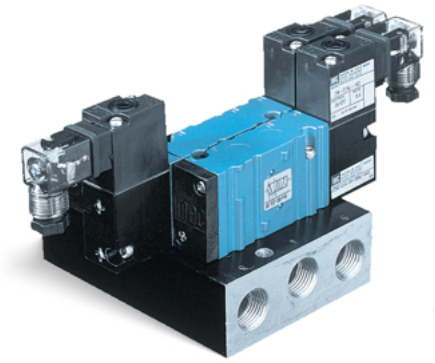
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	mid profile cylinder ports in base

OPERATIONAL BENEFITS

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

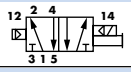
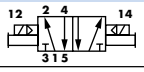
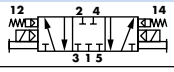
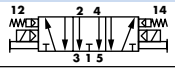
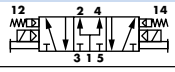
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*XXX-XXX*	○ 423A-OOA-DM-D*XXX-XXX*	○ 453A-OOA-DM-D*XXX-XXX*	○ 463A-OOA-DM-D*XXX-XXX*	○ 473A-OOA-DM-D*XXX-XXX*

SOLENOID OPERATOR ➤ D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

CBM404A-xxxxx-xx

HOW TO ORDER CIRCUIT BAR (BOTTOM CYLINDER PORTS) **

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
1/8" BSPP	Internal	○ CBM404A-00AAB-*XX*	○ CBM404A-00BAB-*XX*	○ CBM404A-02AAB-*XX*	○ CBM404A-02BAB-*XX*
1/4" BSPP	Internal	○ CBM404A-00AAE-*XX*	○ CBM404A-00BAE-*XX*	○ CBM404A-02AAE-*XX*	○ CBM404A-02BAE-*XX*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

OPTIONS

413A-OOA-DM-D*XXX-XXX*

- ☐ clic with memory spring (replace by 6).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

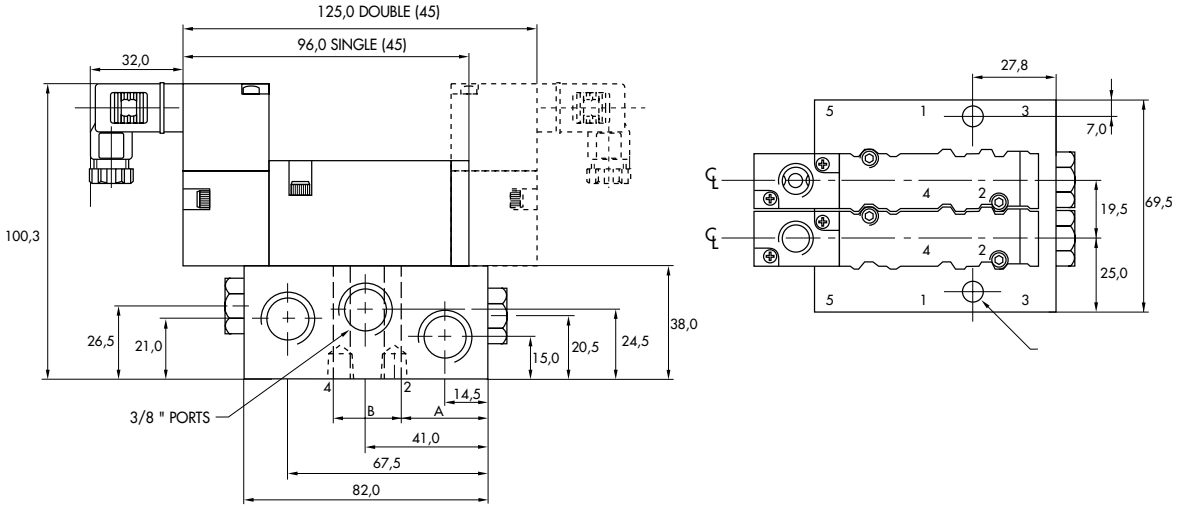
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Flow control (x2) : N-04001. • Seal : 16525.
• Mounting screw (x2) : 35043.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



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

MAC

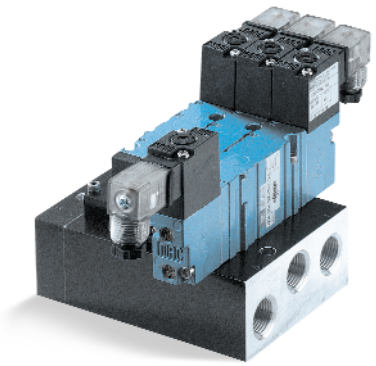
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	mid profile - add on style cylinder ports in base

OPERATIONAL BENEFITS

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

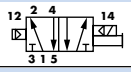
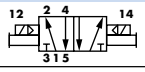
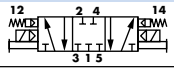
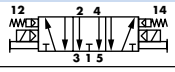
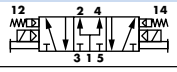
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*XXX-XXX*	○ 423A-OOA-DM-D*XXX-XXX*	○ 453A-OOA-DM-D*XXX-XXX*	○ 463A-OOA-DM-D*XXX-XXX*	○ 473A-OOA-DM-D*XXX-XXX*

SOLENOID OPERATOR ➤

D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR (BOTTOM CYLINDER PORTS) **

CBM404A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm w/o flow controls	Spacing standard 19,5 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
1/8" BSPP	Internal	○ CBM404A-00ABB-*XX*	○ CBM404A-00BBB-*XX*	○ CBM404A-02ABB-*XX*	○ CBM404A-02BBB-*XX*
1/4" BSPP	Internal	○ CBM404A-00ABE-*XX*	○ CBM404A-00BBE-*XX*	○ CBM404A-02ABE-*XX*	○ CBM404A-02BBE-*XX*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

Note: add-a-unit stations may be added to above bars.

OPTIONS

413A-OOA-DM-D*XXX-XXX*

- ☐ clic with memory spring, replace by 6.

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

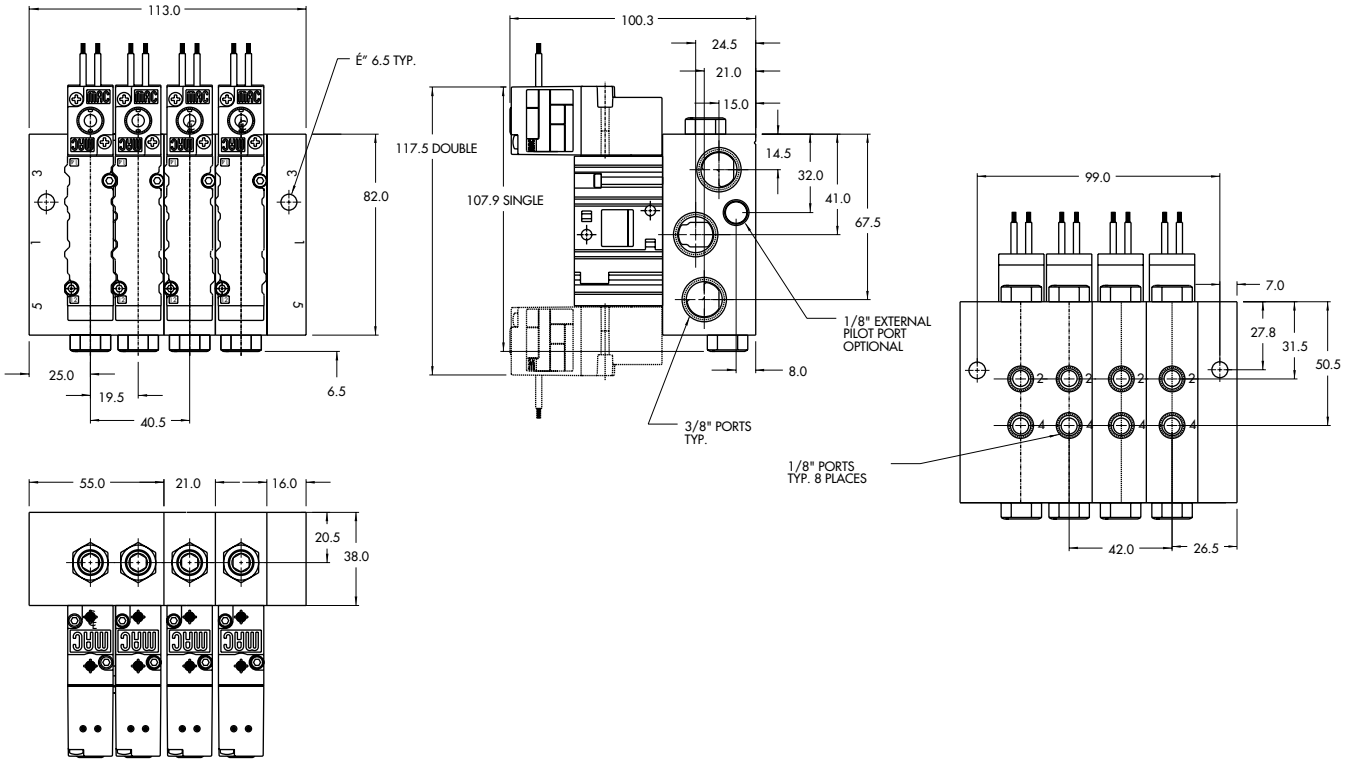
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Flow control (x2) : N-04001. • Seal : 16525.
• Mounting screw (x2) : 35043. • End plate kit : M-04003-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC

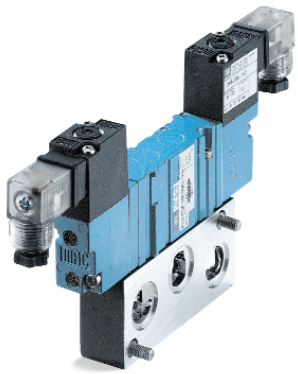
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	add-a-unit stations for CBM404A bar

OPERATIONAL BENEFITS

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

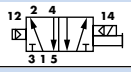
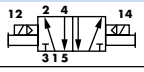
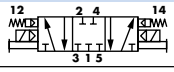
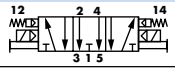
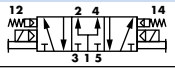
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*XXX-XXX*	○ 423A-OOA-DM-D*XXX-XXX*	○ 453A-OOA-DM-D*XXX-XXX*	○ 463A-OOA-DM-D*XXX-XXX*	○ 473A-OOA-DM-D*XXX-XXX*

SOLENOID OPERATOR ➤

D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR (BOTTOM CYLINDER PORTS) **

CBM404A-xxxxx-xx

Port size	Pilot air	Spacing 21 mm w/o flow controls	Spacing 21 mm w/ flow controls	Spacing 26 mm (Rectangular connector) w/o flow controls	Spacing 26 mm (Rectangular connector) w/ flow controls
1/8" BSPP	Internal	○ CBM404A-01AEB-*XX*	○ CBM404A-01BEB-*XX*	○ CBM404A-02AEB-*XX*	○ CBM404A-02BEB-*XX*
1/4" BSPP	Internal	○ CBM404A-01AEE-*XX*	○ CBM404A-01BEE-*XX*	○ CBM404A-02AEE-*XX*	○ CBM404A-02BEE-*XX*

Number of stations (01, 02, 03, or 04) ☐

** Other options available. Consult factory.

OPTIONS

413A-OOA-DM-D*XXX-XXX*

- ☐ clic with memory spring (replace by 6).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

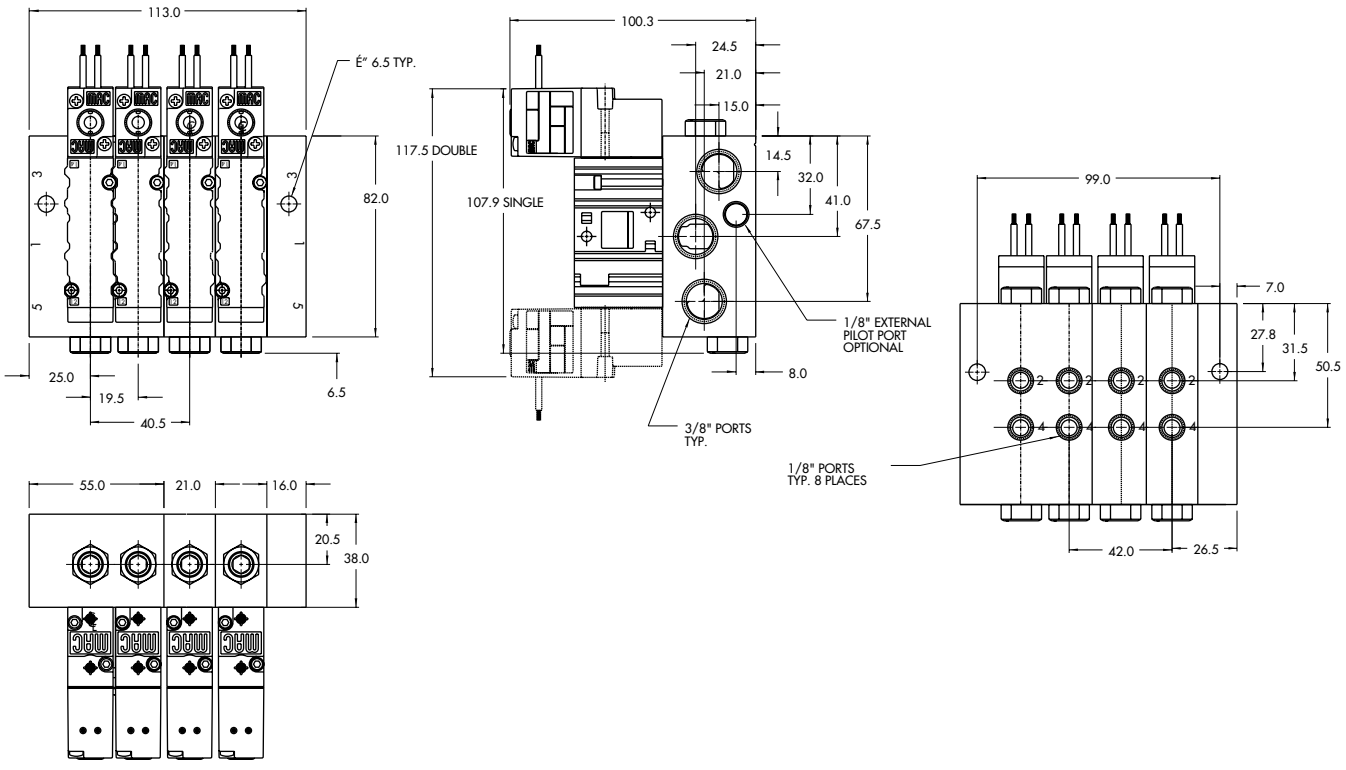
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Flow control (x2) : N-04001. • Seal : 16525.
• Mounting screw (x2) : 35043. • End plate kit : M-04003-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC

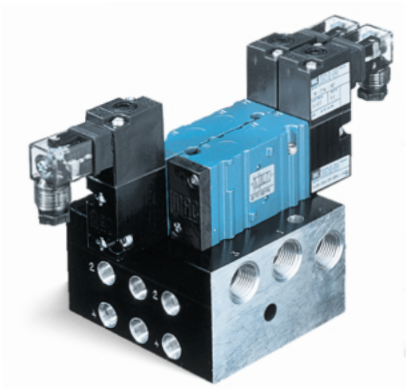
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	high profile cylinder ports in base

OPERATIONAL BENEFITS

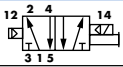
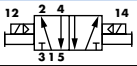
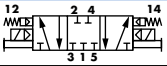
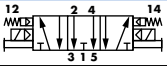
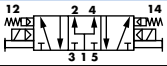
1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced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

Reset



HOW TO ORDER xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*xxx-xxx*	○ 423A-OOA-DM-D*xxx-xxx*	○ 453A-OOA-DM-D*xxx-xxx*	○ 463A-OOA-DM-D*xxx-xxx*	○ 473A-OOA-DM-D*xxx-xxx*
External	○ 413A-OOD-DM-D*xxx-xxx*	○ 423A-OOD-DM-D*xxx-xxx*	○ 453A-OOD-DM-D*xxx-xxx*	○ 463A-OOD-DM-D*xxx-xxx*	○ 473A-OOD-DM-D*xxx-xxx*

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

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

HOW TO ORDER CIRCUIT BAR (SIDE CYLINDER PORTS) **

CBM405A-xxxxx-xx

Port size	Pilot air	Spacing standard 19,5 mm	Spacing 26 mm (Rectangular connector)
1/8" BSPP	Internal	○ CBM405A-00AAB-*xx*	○ CBM405A-02AAB-*xx*
	Common external	○ CBM405A-00BAB-*xx*	○ CBM405A-02BAB-*xx*
1/4" BSPP	Internal	○ CBM405A-00AAE-*xx*	○ CBM405A-02AAE-*xx*
	Common external	○ CBM405A-00BAE-*xx*	○ CBM405A-02BAE-*xx*

Number of stations (03=3 stations) ☐

** Other options available. Consult factory.

OPTIONS

413A-OOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 6).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

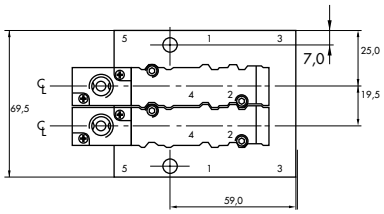
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

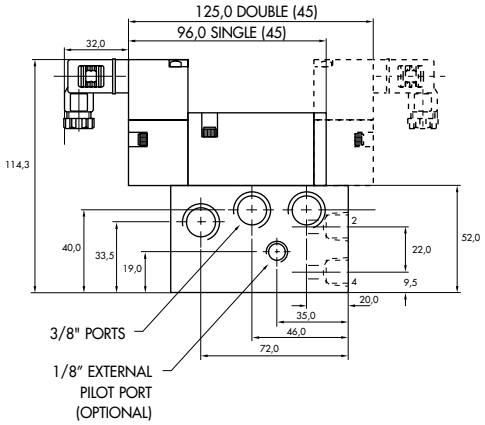
Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Seal : 16525. • Mounting screw (x2) : 35043.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS





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

MAC

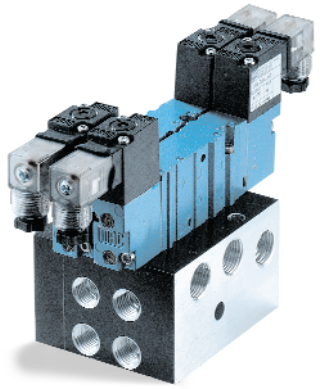
Series **400**

Function	Port size (BSPP)	Flow (Max)	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	high profile - add on style cylinder ports in base

OPERATIONAL BENEFITS

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

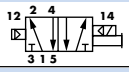
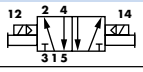
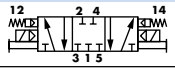
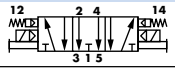
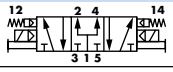
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*xxx-xxx*	○ 423A-OOA-DM-D*xxx-xxx*	○ 453A-OOA-DM-D*xxx-xxx*	○ 463A-OOA-DM-D*xxx-xxx*	○ 473A-OOA-DM-D*xxx-xxx*
External	○ 413A-OOD-DM-D*xxx-xxx*	○ 423A-OOD-DM-D*xxx-xxx*	○ 453A-OOD-DM-D*xxx-xxx*	○ 463A-OOD-DM-D*xxx-xxx*	○ 473A-OOD-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤ D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

CBM405A-xxxxx-xx

HOW TO ORDER CIRCUIT BAR (SIDE CYLINDER PORTS) **

Port size	Pilot air	Spacing standard 19,5 mm	Spacing 26 mm (Rectangular connector)
1/8" BSPP	Internal	○ CBM405A-00ABB-*xx*	○ CBM405A-02ABB-*xx*
	Common external	○ CBM405A-00BCB-*xx*	○ CBM405A-02BCB-*xx*
1/4" BSPP	Internal	○ CBM405A-00ABE-*xx*	○ CBM405A-02ABE-*xx*
	Common external	○ CBM405A-00BCE-*xx*	○ CBM405A-02BCE-*xx*

Number of stations (03=3 stations) ☐
** Other options available. Consult factory.
Note: add-a-unit stations may be added to above bars.

OPTIONS

413A-OOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 6).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

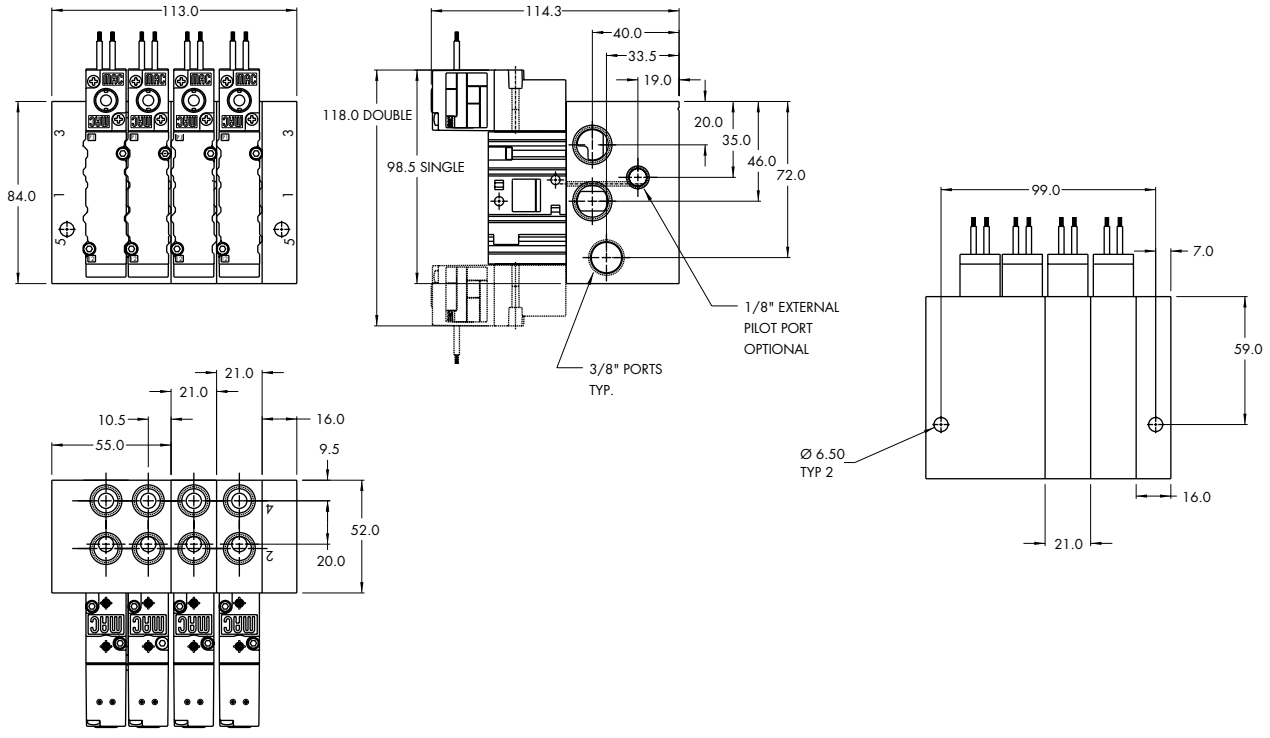
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Seal : 16525. • Mounting screw (x2) : 35043.
• End plate kit : M-04005-01. • End plate kit for common external pilot : M-04006-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



MAC

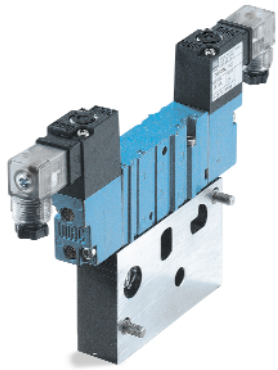
Series **400**

Function	Port size [BSPP]	Flow [Max]	Circuit bar mounting
5/2 - 5/3	**1/8" - 1/4"**	**1000 NL/min**	add-a-unit stations for CBM405A bar

OPERATIONAL BENEFITS

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

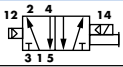
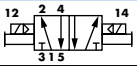
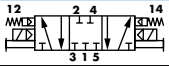
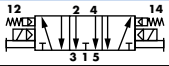
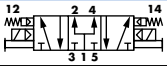
Reset



HOW TO ORDER

xxxx-xxx-DM-Dxxx-xxx

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
					
Internal	○ 413A-OOA-DM-D*xxx-xxx*	○ 423A-OOA-DM-D*xxx-xxx*	○ 453A-OOA-DM-D*xxx-xxx*	○ 463A-OOA-DM-D*xxx-xxx*	○ 473A-OOA-DM-D*xxx-xxx*
External	○ 413A-OOD-DM-D*xxx-xxx*	○ 423A-OOD-DM-D*xxx-xxx*	○ 453A-OOD-DM-D*xxx-xxx*	○ 463A-OOD-DM-D*xxx-xxx*	○ 473A-OOD-DM-D*xxx-xxx*

SOLENOID OPERATOR ➤ D *XX X- X XX**

XX	Voltage
○ *JB*	240/60, 220/50
○ *JA*	120/60, 110/50
○ *JC*	24/60, 24/50
○ *FB*	24VDC (1.8 W)
○ *DA*	24VDC (5.4 W)
○ *DF*	24VDC (12.7 W)
○ *xx*	Other Options

X	Wire length
○ *A*	45 cm (Flying leads)
○ *J*	Connector
○ *x*	Other Options

X	Manual operator
○ *1*	Non-locking
○ *2*	Locking
○ *x*	Other Options

XX	Electrical connection
○ *KA*	Square connector
○ *KD*	Square connector with light
○ *JB*	Rectangular connector
○ *JD*	Rectangular connector with light
○ *BA*	Flying leads
○ *xx*	Other Options

CBM405A-xxxxx-xx

HOW TO ORDER CIRCUIT BAR (SIDE CYLINDER PORTS) **

Port size	Pilot air	Spacing 21 mm	Spacing 26 mm (Rectangular connector)
1/8" BSPP	Internal	○ CBM405A-01AEB-*xx*	○ CBM405A-02AEB-*xx*
	Common external	○ CBM405A-01BEB-*xx*	○ CBM405A-02BEB-*xx*
1/4" BSPP	Internal	○ CBM405A-01AEE-*xx*	○ CBM405A-02AEE-*xx*
	Common external	○ CBM405A-01BEE-*xx*	○ CBM405A-02BEE-*xx*

Number of stations (01, 02, 03, or 04) ☐

** Other options available. Consult factory.

OPTIONS

413A-OOA-DM-D*xxx-xxx*

- ☐ clic with memory spring (replace by 6).

MAC

Series **400**

100% OF PRODUCTION TESTED 100%

WARRANTY 18 MONTHS

TECHNICAL DATA

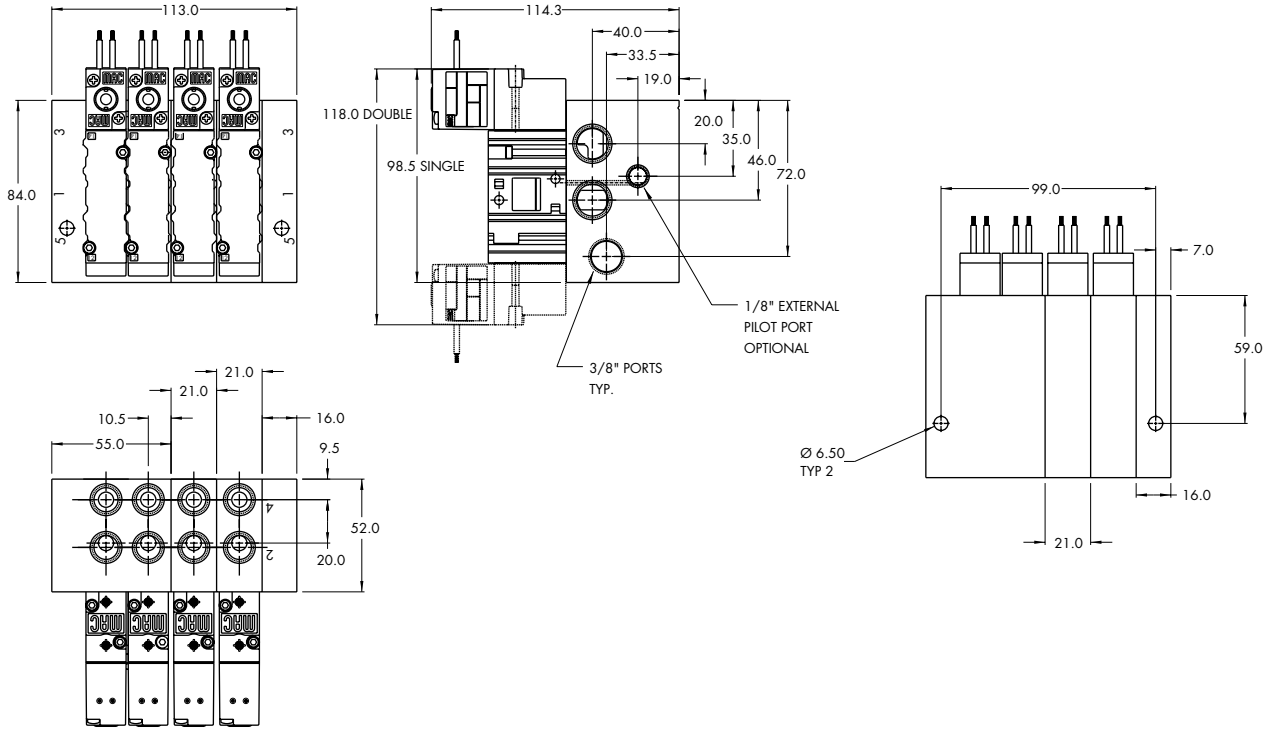
Fluid :	Compressed air, vacuum, inert gases		
Pressure range :	Internal pilot : 1.3 - 8.5 BAR External pilot : vacuum - 8.5 BAR		
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used select a medium aniline point lubricant (between 80°C to 100°C)		
Filtration :	40 µ		
Temperature range :	0°F to 120°F (-18°C to +50°C)		
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm^3/min		
Coil :	General purpose class A, continuous duty, encapsulated		
Voltage range :	-15% to +10% of nominal voltage		
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA = 1.8 to 12.7 W	Holding : 7.7 VA	
Response times :	24 V=/5.4 W	Energize : 7.3 ms	De-energize : 5.3ms
	60Hz/6 W	Energize : 8-12 ms	De-energize : 7-11 ms

Spare parts : • Pilot valve : DM-DXXX-XXX-1, including mounting screws 35069 and seal 16524.

Accessories : • Blanking plate : M-04002. • Seal : 16525. • Mounting screw (x2) : 35043.
• End plate kit : M-04005-01. • End plate kit for common external pilot : M-04006-01.

Options : • NPTF threads. • Isolation of inlet and/or exhaust.

DIMENSIONS



Section 2 Options

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

VALVE CODE ➤ $DM\text{-}\underset{1}{DXX}\,\underset{2}{X}\,\text{-}\,\underset{3}{X}\,\underset{4}{XX}$

OPTIONS AVAILABLE FOR
- pilot operated valves 400, 52 & 92 Series

OPTIONS

Back

1. VOLTAGE

-D XX X -X XX	VOLTAGE
DB	12 VDC (5.4 W)
DC	12 VDC (7.5 W)
DD	24 VDC (7.3 W)
DE	12 VDC (12.7 W)
DK	110 VDC (5.8 W)
DJ	28 VDC (5.7 W)
DL	64 VDC (6.0 W)
DM	36 VDC (5.8 W)
DN	6 VDC (6.0 W)
DR	90 VDC (6,6 W)
DS	110 VDC (7.3 W), 100 VDC (6.0 W)
DT	75 VDC (5.6 W)
DP	48 VDC (5.8 W)
FA	12 VDC (1.8 W)
FE	12 VDC (2.4 W)
FF	24 VDC (2.4 W)
JD	100/60, 100/50, 110/60

2. WIRE LENGTH

-D XX X -X XX	WIRE LENGTH
B	60 cm
C	90 cm
D	120 cm
E	180 cm
F	240 cm

3. MANUAL OPERATOR

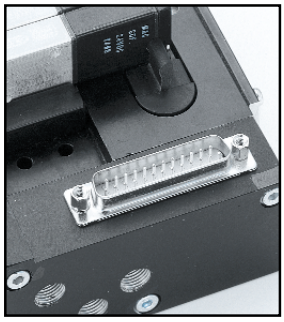
-D XX X -X XX	MANUAL OPERATOR
◯ 0	No operator
◯ 1	Non-locking recessed
◯ 2	Locking recessed
◯ 3	Non-locking extended
◯ 4	Locking extended

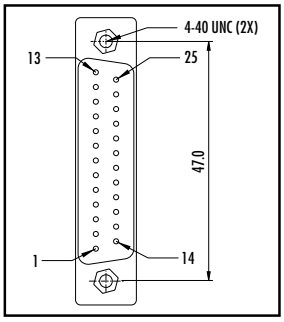
4. ELECTRICAL CONNECTION

-D XX X -X XX	ELECTRICAL CONNECTION
BA	Flying leads
BK	BA with protection diode
BL	BA with protection varistor
CA	1/2" NPS conduit
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
KD	Square connector with light
KE	Square connector with light and protection diode
KF	Square connector with light and protection varistor
KJ	Square connector (male only)
KK	Square connector with protection diode (male only)
KL	Square connector with protection varistor (male only)
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
*DN	Plug-in with diode
*DP	Plug-in with M.O.V.
*DH	Plug-in with diode & ground
*DJ	Plug-in with M.O.V & ground

* These options only apply to the 92 series. All others are for the 400 and 52 series.

Connector SUB_D 25 (option ZZZY = SUBY ; Y = cable length)

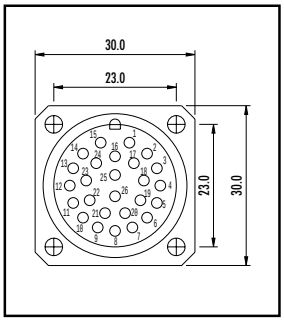




TECHNICAL DATA

- Type «SUB_D»
- Number of contacts : 25
- Solder termination (Dia. 0.6 mm/0.14 mm²/26-22 AWG)
- Operating current 5 A/contact
- Rated voltage 125 V~
- Temp. range –40° to +125°C
- Insulation resistance ≥ 10^{10} Ω
- Protection class IP40 (DIN 40050)
- Number of solenoids : 20 max.
- Max. 24 V=/5.4 W per solenoid
- 5 common wires
- Female plug supplied with circuit bar

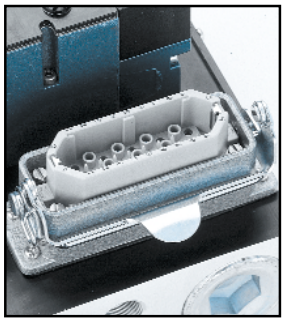
Connector RND (option ZZZY = RNDY ; Y = cable length)

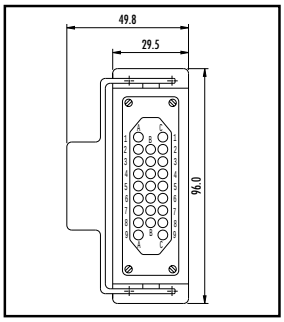


TECHNICAL DATA

- Type «Round connector»
- Number of contacts : 26
- Solder termination (Dia. 1 mm/1 mm²/17 AWG)
- Operating current 7.5 A/contact
- Rated voltage 250 V~
- Insulation resistance ≥ 10^{8} Ω
- Cable entry PG16
- Temp. range –40° to +125°C
- Protection class IP65 (DIN 40050)
- Number of solenoids : 24 max.
- 1 common and 1 ground
- All voltages
- Female plug supplied with circuit bar

Connector HDT (option ZZZY = HDTY ; Y = cable length)

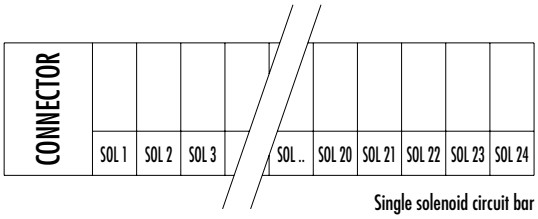




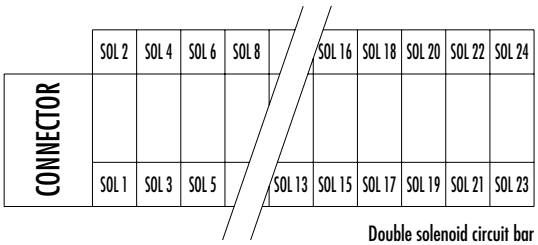
TECHNICAL DATA

- Type «Heavy duty»
- Number of contacts : 25
- Solder termination (Dia. 1.4 mm/0.75 mm²/18 AWG)
- Operating current 10 A/contact
- Rated voltage 250 V~
- Insulation resistance ≥ 10^{10} Ω
- Cable entry PG16
- Temp. range –40° to +125°C
- Protection class IP65 (DIN 40050)
- Number of solenoids : 24 max.
- 1 common and 1 ground
- All voltages
- Female plug supplied with circuit bar

Connector termination details



Single solenoid circuit bar

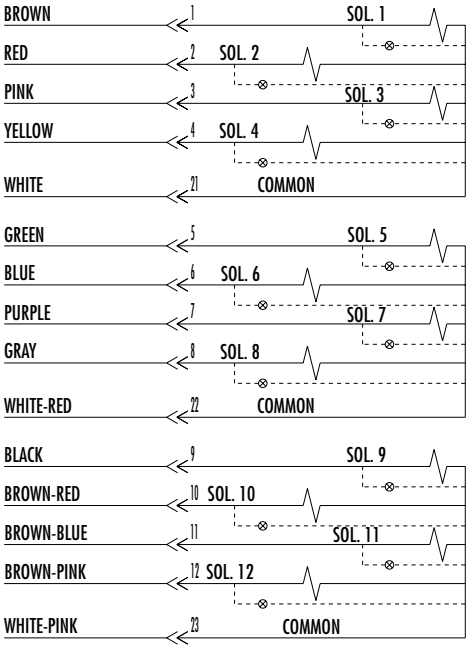


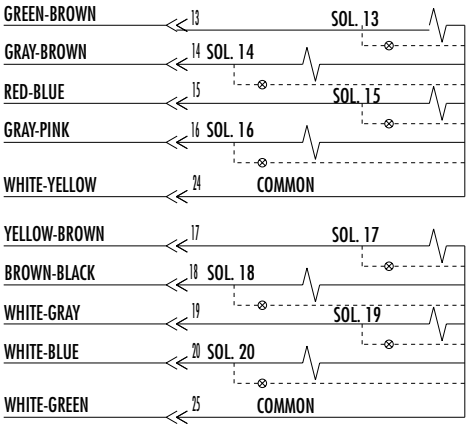
Double solenoid circuit bar

Connector SUB_D25 (option ZZZY = SUBY ; Y = cable length)

TECHNICAL DATA PREWIRED CABLE

- Type : LIYY -0.14 mm²
- Dia. ca. 9.3 mm
- Insulation resistance : 20 MΩ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 250 V~
- PVC core insulation and sheath

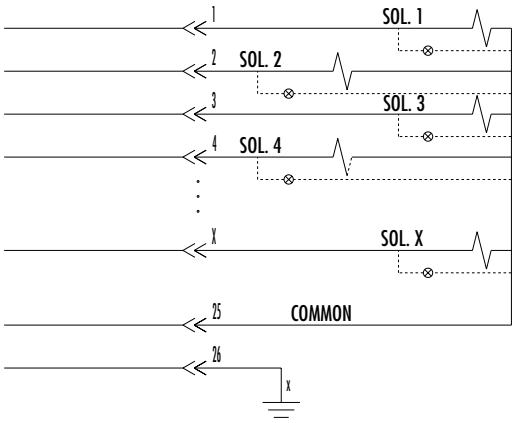




Connector RND [option ZZZY = SNDY ; Y = cable length]

TECHNICAL DATA PREWIRED CABLE

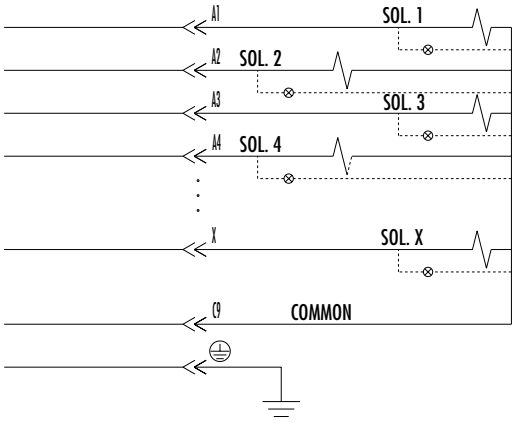
- Type : LIY(C)Y -0.50 mm²
- Dia. ca. 10.8 mm (12 core); 12.9 mm (18 core); 16.0 mm (32 core)
- Insulation resistance : 20 MΩ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 500 V~
- PVC core insulation and sheath
- Tinned copper wire braid



Connector HDT [option ZZZY = HDTY ; Y = cable length]

TECHNICAL DATA PREWIRED CABLE

- Type : LIY(C)Y -0.75 mm²
- Dia. ca. 12.0 mm (12 core); 13.5 mm (18 core); 18.0 mm (32 core)
- Insulation resistance : 20 MΩ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 500 V~
- PVC core insulation and sheath
- Tinned copper wire braid



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 AND SERVICE PRECAUTIONS :

A. Do not install or service MAC valves without first making sure both the air and electrical power to the machine are off and that all air has been completely bled from the system.

B. MAC valves should only be installed and/or serviced 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 and graphic symbols. Do not install unless these symbols and the valve functions and operations are thoroughly understood.

C. Before service, maintenance, repair or cleaning, consult local distributor or factory for Parts & Operation Sheet and information on proper cleaning and lubrication agents. Do not subject MAC valves' parts to any foreign substance including lubricants and cleaning agents not specifically recommended by MAC valves, Inc.

D. 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 condition.

WARNING :

Under no circumstances are Mac valves to be used in any application where failure of the valve to operate as intended could jeopardize the safety of the operator or any other person.
- Do not operate outside of pressure range listed on valve label or outside of designated temperature range.
- Air supply must be clean. Contamination of valve can affect proper operation.
- Before attempting to repair, adjust or clean valve, consult catalog, parts & operation sheet, or factory for proper maintenance procedures, lubrication, and cleaning agents. Never attempt to repair or perform other maintenance with air pressure to valve.
- If airline lubrication is used, consult catalog, parts & operation sheet, or factory for recommended lubricants.

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.