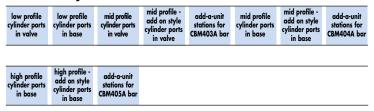
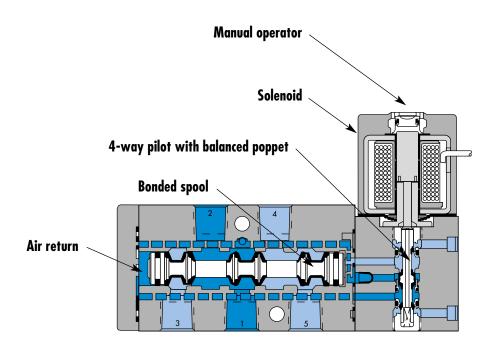


Direct solenoid and solenoid pilot operated valves

Circuit bar mounting





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.

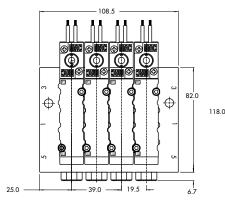


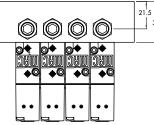
		Port size (BS	PP]	Flow (Max)	Circuit bar mounting	
2 - 5/3		1/8″ - 1,	/4"	1000 NL/min	low profile cylinder ports in valve	
RATIONAL BENE	FITS					
oth ways. Aemory spring alanced spool, Iso provides hi hort stroke with onded spool w lass-like finishe	available. , immune to v igh flow. h high flow. vith minimum ad bore. ced poppet, l unse times. liminates stick a.	ximum shifting forces variations of pressure, friction, shifting in a high flow, short and king.				
		OR CIRCUIT BAR				
Port size	Pilot air	5/2 Single operato	5/2	5/3 Closed center	5/3 Open center	5/3 Pressure center
/8" BSPP /4" BSPP	Internal	315 411A-COA-DM-Dxxx- 411A-DOA-DM-Dxxx-				
LENOID OP		X	U XX . Wire length	X- X XX [*] X Manual op	erator XX	Electrical connection
	6 0, 220/50	А	45 cm (Flying leads)	1 Non-locking	КА	Square connector
IA 120/0	60, 110/50 0, 24/50	J	Connector	2 Locking	KD 	Square connector with light Rectangular connector
	C (1.8 W)				JD	Rectangular connector with light
FB 24VD					ВА	Flying leads
DA 24VD	C (5.4 W)					
DA 24VD	C (5.4 W) C (12.7 W)					
DA 24VD DF 24VD	C (12.7 W)		Spacing standard 19,	5 mm	Spacing 26 mm (F	tectangular connector)
DA 24VD DF 24VD	c (12.7 W) R CIRCUIT B,	air w/o f	low controls w/	flow controls	Spacing 26 mm (F w/o flow controls CBM401A-02AAB- xx	Rectangular connector) w/ flow controls CBM401A-02BAB-XX

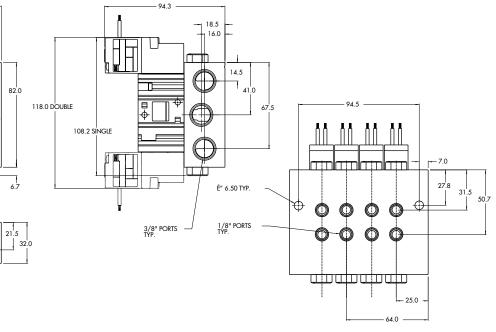




Pressure range : Pilot pressure : Lubrication : Filtration : Temperature range : Orifice : Flow :	Compressed air, vacuu 1.3 - 8.5 BAR 1.3 - 8.5 BAR Not required, if used s 40 µ 0°F to 120°F (-18°C to 6.2 mm 1000 NL/min	select a medium aniline poi	nt lubricant (between 80°C to 100°C)
Lubrication : Filtration : Temperature range : Orifice :	Not required, if used s 40 µ 0°F to 120°F (-18°C to 6.2 mm	•	nt lubricant (between 80°C to 100°C)
Filtration : Temperature range : Orifice :	40 μ 0°F to 120°F (-18°C to 6.2 mm	•	nt lubricant (between 80°C to 100°C)
Temperature range : Orifice :	0°F to 120°F (-18°C to 6.2 mm	> +50°C)	
Orifice :	6.2 mm	⊳ +50°C)	
Flow :	1000 NL/min		
Leak rate :	50 cm³/min		
Coil :	General purpose class	A, continuous duty, encaps	ulated
Voltage range :	-15% to +10% of nomi	nal 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-DX	XX-XXX-1, including mount	ing screws 35069 and seal 16524.
Accessories :	 Blanking plate : M-0 Mounting screw (x2): N-04001. • Seal (x2): 17013-01, (x1): 17015-01.
Options :	g coron (n2	-1	









unction Port size (BSPP)			Flow (Max) Circuit bar		cuit bar mounting		
/2 - 5/	/3 1	1000 NL/mii	low profile cylinder ports in base				
PERATION	AL BENEFITS						
both way Memory Balanced also prov Short stro Bonded glass-like Pilot with consister	spring available. d spool, immune to variations of vides high flow. spool with high flow. spool with minimum friction, sh is finished bore. In balanced poppet, high flow, at response times. effect eliminates sticking. vice life.	of pressure,					
W TC	ORDER VALVE FOR CIRC	CUIT BAR MOUNTING					
ilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open cen	ter	5/3 Pressure center	
	$12 \begin{array}{c} 2 \\ 12 \\ 12 \\ 12 \\ 14 \\ 14 \\ 17 \\ 15 \\ 15 \end{array}$	$12 \qquad 2 \qquad 4 \qquad 14$ $12 \qquad 75 \qquad 7 \qquad $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
ternal LENO	413A-OOA-DM-DXXX-XXX ID OPERATOR ►	423A-OOA-DM-DXXX-XXX	453A-OOA-DM-Dxxx-xxx	463A-OOA-DM-D	XXX-XXX	473A-OOA-DM-D xxx-xxx	
			<u> </u>				
xx	Voltage	X Wire length	X Manua	l operator	XX	Electrical connection	
JB	240/60, 220/50	A 45 cm (Flying lead	ls) 1 Non-loc	king	КА	Square connector	
JA	120/60, 110/50	J Connector	2 Locking		KD	Square connector with light	
JC	24/60, 24/50		·		JB	Rectangular connector	
FB	24VDC (1.8 W)				JD	Rectangular connector with light	
DA	24VDC (5.4 W)				BA	Flying leads	
DA DF	24VDC (5.4 W) 24VDC (12.7 W)				BA	-	

		IOM CILINDER I ORISJ			
Port size	Pilot air	Spacing stand w/o flow controls	ard 19,5 mm w/ flow controls	Spacing 26 mm (Rea w/o flow controls	tangular 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.

O P T I O N S

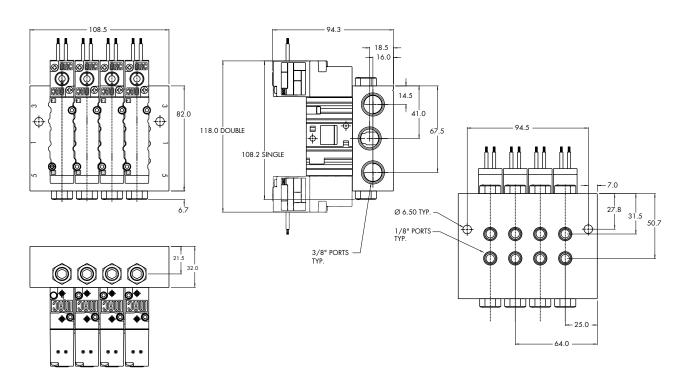
413A-OOA-DM-Dxxx-xxx

clic with memory spring (replace by 6). ____





TECHNICAL			
Fluid :	Compressed air, vacuu	ım, inert gases	
Pressure range :	Internal pilot : 1.3 - 8.	5 BAR	
	External pilot : vacuum	n - 8.5 BAR	
Pilot pressure :	1.3 - 8.5 BAR		
Lubrication :	Not required, if used	select a medium aniline poi	int 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 cm³/min		
Coil :	General purpose class	A, continuous duty, encaps	sulated
Voltage range :	-15% to +10% of nomi	nal voltage	
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
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-DX	XX-XXX-1, including mount	ting screws 35069 and seal 16524.
Accessories :	 Blanking plate : M-0 Mounting screw (x2 		2) : N-04001. • Seal : 16525.
Options :	0 .		
	• NPTF threads. • Iso	lation of inlet and/or exh	aust.





Port size (BSPP)	Flow (Max)	Circuit bar mounting
1/8" - 1/4"	1000 NL/min	mid profile cylinder ports in valve
		<u> </u>
s maximum shifting forces e. e to variations of pressure, ow. num friction, shifting in a pet, high flow, short and s. s sticking.		
VE FOR CIRCUIT BAR MOUNTING		
	1/8" - 1/4" s maximum shifting forces e. e to variations of pressure, ow. num friction, shifting in a pet, high flow, short and s. s sticking.	1/8" - 1/4" 1000 NL/min s maximum shifting forces e. e to variations of pressure, ow. num friction, shifting in a pet, high flow, short and s. s sticking.

Port size	Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
		$12 \begin{array}{c} 2 \\ 12 \\ 12 \\ 12 \\ 14 \\ 14 \\ 14 \\ 14 \\ $	$\begin{array}{c}12\\12\\175\\175\\1\\1\\315\end{array}$	$\begin{array}{c}12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ $	$\begin{array}{c}12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\1$	$12 \qquad 2 \qquad 4 \qquad 14$
1/8" BSPP	Internal	411A-COA-DM-Dxxx-xxx	421A-COA-DM-Dxxx-xxx	451A-COA-DM-Dxxx-xxx	461A-COA-DM-Dxxx-xxx	471A-COA-DM-Dxxx-xxx
1/4" BSPP		411A-DOA-DM-Dxxx-xxx	421A-DOA-DM-Dxxx-xxx	451A-DOA-DM-Dxxx-xxx	461A-DOA-DM-Dxxx-xxx	471A-DOA-DM-Dxxx-xxx
1/8" BSPP	External	411A-COD-DM-Dxxx-xxx	421A-COD-DM-Dxxx-xxx	451A-COD-DM-Dxxx-xxx	461A-COD-DM-Dxxx-xxx	471A-COD-DM-Dxxx-xxx
1/4" BSPP		411A-DOD-DM-Dxxx-xxx	421A-DOD-DM-Dxxx-xxx	451A-DOD-DM-Dxxx-xxx	461A-DOD-DM-Dxxx-xxx	471A-DOD-DM-Dxxx-xxx

SOLENOID OPERATOR >

D <u>xx</u> x- <u>x</u> xx^{*}

XX	Voltage	X	Wire length	X	Manual operator	ХХ	Electrical connection
JB	240/60, 220/50	А	45 cm (Flying leads)	1	Non-locking	КА	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50					JB	Rectangular connector
FB	24VDC (1.8 W)					JD	Rectangular connector with light
DA	24VDC (5.4 W)	_				BA	Flying leads
DF	24VDC (12.7 W)						

HOW TO ORDER	CIRCUIT BAR **		C		
Port size	Pilot air	Spacing stand w/o flow controls	lard 19,5 mm w/ flow controls	Spacing 26 mm (Rec w/o flow controls	tangular 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.

O P T I O N S

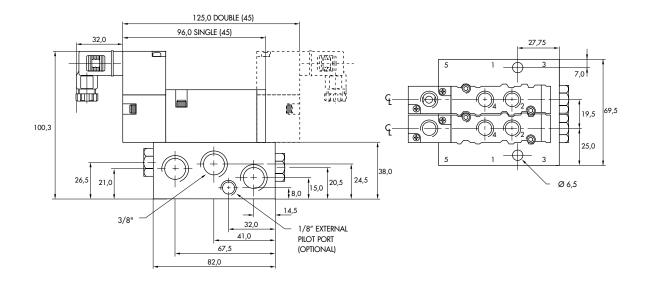
411A-AOA-DM-Dxxx-xxx

clic with memory spring (replace by 4).





ECHNICAL			
A T A			
uid :	Compressed air, vacuu	ım, inert gases	
essure range :	Internal pilot : 1.3 - 8.	5 BAR	
	External pilot : vacuum	n - 8.5 BAR	
Pilot pressure :	1.3 - 8.5 BAR		
ubrication :	Not required, if used	select a medium aniline poi	nt lubricant (between 80°C to 100°C)
iltration :	40 µ		
lemperature range :	0°F to 120°F (-18°C to	» +50°C)	
Orifice :	6.2 mm		
Flow :	1000 NL/min		
Leak rate :	50 cm³/min		
Coil :	General purpose class	A, continuous duty, encaps	ulated
Voltage range :	-15% to +10% of nomi	nal voltage	
Protection :	NEMA 4		
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA	
	= 1.8 to 12.7 W		
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-DX	XX-XXX-1, including mount	ing screws 35069 and seal 16524.
Accessories :	 Blanking plate : M- Mounting screw (x2): N-04001. • Seal (x2): 17013-01, (x1): 17015-01.
Options :	• NPTF threads. • Isc	, lation of inlet and/or exh	just.





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			
 The 4-way pilot develop both ways. Memory spring availabl Balanced spool, immune also provides high flow. Short stroke with high fle Bonded spool with minir glass-like finished bore. Pilot with balanced popy consistent response time Wiping effect eliminates Long service life. 	e. a to variations of pressure, ow. num friction, shifting in a pet, high flow, short and s.		

HOW TO ORDER

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
		$12 \begin{array}{c} 2 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 13 \\ 15 \end{array}$	$\begin{array}{c}12\\ \hline T \\ T \\$	$\begin{array}{c}12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 12 \\ 12 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\$
1/8" BSPP	Internal	411A-COA-DM-Dxxx-xxx	421A-COA-DM-Dxxx-xxx	451A-COA-DM-Dxxx-xxx	461A-COA-DM-Dxxx-xxx	471A-COA-DM-Dxxx-xxx
1/4" BSPP		411A-DOA-DM-Dxxx-xxx	421A-DOA-DM-Dxxx-xxx	451A-DOA-DM-Dxxx-xxx	461A-DOA-DM-Dxxx-xxx	471A-DOA-DM-Dxxx-xxx
1/8" BSPP	External	411A-COD-DM-Dxxx-xxx	421A-COD-DM-Dxxx-xxx	451A-COD-DM-Dxxx-xxx	461A-COD-DM-Dxxx-xxx	471A-COD-DM-Dxxx-xxx
1/4" BSPP		411A-DOD-DM-Dxxx-xxx	421A-DOD-DM-Dxxx-xxx	451A-DOD-DM-Dxxx-xxx	461A-DOD-DM-Dxxx-xxx	471A-DOD-DM-Dxxx-xxx

SOLENOID OPERATOR ►

D <u>XX</u> X- <u>X</u> XX^{*}

				_			
XX	Voltage	X	Wire length	X	Manual operator	ХХ	Electrical connectio
JB	240/60, 220/50	A	45 cm (Flying leads)	1	Non-locking	КА	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50					JB	Rectangular connector
FB	24VDC (1.8 W)					JD	Rectangular connector with light
DA	24VDC (5.4 W)	_				BA	Flying leads
DF	24VDC (12.7 W)						

HOW TO ORDER CIRCUIT BAR **

Port size	Pilot air	Spacing stand w/o flow controls	ard 19,5 mm w/ flow controls	Spacing 26 mm (Rec w/o flow controls	tangular 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.

O P T I O N S

411A-AOA-DM-Dxxx-xxx

clic with memory spring (replace by 4). ____

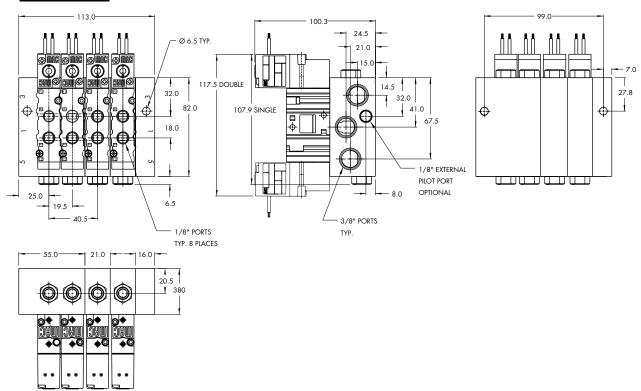




Fluid :	Compressed air, vacuum, inert gases							
Pressure range :	Internal pilot : 1.3 - 8.5 BAR							
	External pilot : vacuum - 8.5 BAR							
Pilot pressure :	1.3 - 8.5 BAR	1.3 - 8.5 BAR						
Lubrication :	Not required, if used	select a medium aniline poir	nt lubricant (between 80°C to 100°C)					
Filtration :	40 µ							
Temperature range :	0°F to 120°F (-18°C to	0°F to 120°F (-18°C to +50°C)						
Orifice :	6.2 mm	6.2 mm						
Flow :	1000 NL/min	1000 NL/min						
Leak rate :	50 cm³/min							
Coil :	General purpose class	A, continuous duty, encaps	ulated					
Voltage range :	-15% to +10% of nomi	nal voltage						
Protection :	NEMA 4							
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA						
Response times :	= 1.8 to 12.7 W 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					

Options :

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





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			
 The 4-way pilot develop: both ways. Memory spring available Balanced spool, immune also provides high flow. Short stroke with high flo Bonded spool with mining glass-like finished bore. Pilot with balanced popp consistent response time. Wiping effect eliminates Long service life. 	e. to variations of pressure, ww. num friction, shifting in a pet, high flow, short and s.		

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
		$12 \begin{array}{c} 2 \\ 12 \\ 12 \\ 12 \\ 14 \\ 14 \\ 14 \\ 14 \\ $	$\begin{array}{c}12\\12\\175\\175\\17\\17\\17\\17\\17\\17\\17\\17\\17\\17\\17\\17\\17\\$	$\begin{array}{c}12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ $	$\begin{array}{c}12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\12\\1$	
1/8" BSPP	Internal	411A-COA-DM-Dxxx-xxx	421A-COA-DM-Dxxx-xxx	451A-COA-DM-Dxxx-xxx	461A-COA-DM-Dxxx-xxx	471A-COA-DM-Dxxx-xxx
1/4" BSPP		411A-DOA-DM-Dxxx-xxx	421A-DOA-DM-Dxxx-xxx	451A-DOA-DM-Dxxx-xxx	461A-DOA-DM-Dxxx-xxx	471A-DOA-DM-Dxxx-xxx
1/8" BSPP	External	411A-COD-DM-Dxxx-xxx	421A-COD-DM-Dxxx-xxx	451A-COD-DM-Dxxx-xxx	461A-COD-DM-Dxxx-xxx	471A-COD-DM-Dxxx-xxx
1/4" BSPP		411A-DOD-DM-Dxxx-xxx	421A-DOD-DM-Dxxx-xxx	451A-DOD-DM-Dxxx-xxx	461A-DOD-DM-Dxxx-xxx	471A-DOD-DM-Dxxx-xxx

SOLENOID OPERATOR ►

HOW TO ORDER

$\mathsf{D} \, \underline{\mathbf{X}} \, \underline{\mathbf{X}} \, \underline{\mathbf{X}} - \underline{\mathbf{X}} \, \underline{\mathbf{X}} \, \underline{\mathbf{X}}^{\mathsf{T}}$

xx	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JB	240/60, 220/50	А	45 cm (Flying leads)	1	Non-locking	КА	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50			_		JB	Rectangular connector
FB	24VDC (1.8 W)					JD	Rectangular connector with light
DA	24VDC (5.4 W)					BA	Flying leads
DF	24VDC (12.7 W)	_					

HOW TO ORDER CIRCUIT BAR **

Port size	Pilot air	Spacing w/o flow controls	21 mm w/ flow controls	Spacing 26 mm (Rea w/o flow controls	tangular 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.

O P T I O N S

411A-AOA-DM-Dxxx-xxx _____ - clic with memory spring (replace by 4).



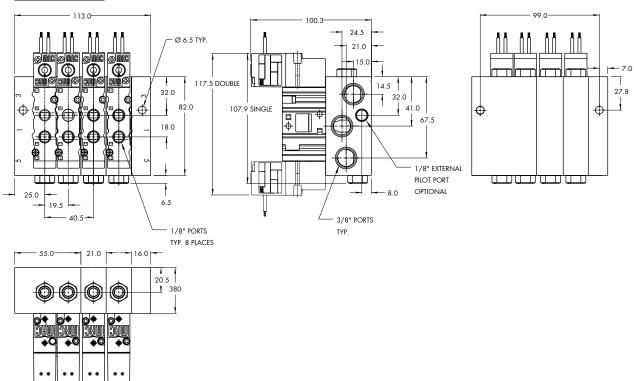


luid :	Compressed air, vacuum, inert gases							
ressure range :	Internal pilot : 1.3 - 8.5	Internal pilot : 1.3 - 8.5 BAR						
	External pilot : vacuum - 8.5 BAR							
Pilot pressure :	1.3 - 8.5 BAR							
ubrication :	Not required, if used s	Not required, if used select a medium aniline point lubricant (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 cm³/min							
Coil :	General purpose class	A, continuous duty, encaps	ulated					
Voltage range :	-15% to +10% of nomin	nal 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					

Options :

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







Function		Port siz	e (BSPP)		Flow (Max)	Circuit bar I	mounting	
5/2 - 5/	′3	1/8″	- 1/4″		1000 NL/mi	mid profile cylinder ports in base		
OPERATIONA	IL BENEFITS							
 The 4-wa both way Memory Balanced also prov Short strcc Bonded s glass-like Pilot with consisten 	y pilot develops max rs. spring available. I spool, immune to vo rides high flow. see with high flow. spool with minimum f finished bore. balanced poppet, h t response times. stect eliminates sticki rice life.	ariations of pres riction, shifting igh flow, short	ssure, in α					
IOW TO	ORDER VALVE F	OR CIRCUIT	BAR MOUNTING					
Pilot air	5/2 Single opera		5/2		5/3 ed center	5/3 Open cen	.	5/3
		14 ZL	Double operator					
Internal	413A-OOA-DM-DX		<u>115</u> 315 23A-OOA-DM-Dxxx-xxx		<u> + + + + + + + + + + + + + + + + + + +</u>	$- \frac{463A-OOA-DM-D}{463A-OOA-DM-D}$		473A-OOA-DM-DXXX-XXX
Solenoi	D OPERATOR >		D	xx x -	x xx [.]			
хх	Voltage	X	Wire length		X Manua	al operator	xx	Electrical connection
	240/60, 220/50		45 cm (Flying lead	40)	1 Non-loo	king	K A	Square connector
JB		A		15]		<u> </u>	KA	oquare connector
JB JA	120/60, 110/50		Connector		2 Locking	<u> </u>	KD	Square connector
						<u> </u>		
JA	120/60, 110/50					<u> </u>	KD	Square connector with light
JA JC	120/60, 110/50 24/60, 24/50 24VDC (1.8 W) 24VDC (5.4 W)					<u> </u>	KD JB	Square connector with light Rectangular connector Rectangular connector
JA JC FB	120/60, 110/50 24/60, 24/50 24VDC (1.8 W)					<u> </u>	KD JB JD	Square connector with light Rectangular connector Rectangular connector with light
JA JC FB DA DF	120/60, 110/50 24/60, 24/50 24VDC (1.8 W) 24VDC (5.4 W) 24VDC (12.7 W)	J				<u> </u>	KD JB JD	Square connector with light Rectangular connector Rectangular connector with light
JA JC FB DA DF	120/60, 110/50 24/60, 24/50 24VDC (1.8 W) 24VDC (5.4 W) 24VDC (12.7 W) ORDER CIRCUIT BA	R (BOTTOM C	Connector	lard 19,5 m	2 Locking		KD JB JD BA 26 mm (Ree	Square connector with light Rectangular connector Rectangular connector with light
JA JC FB DA DF	120/60, 110/50 24/60, 24/50 24VDC (1.8 W) 24VDC (5.4 W) 24VDC (12.7 W) ORDER CIRCUIT BA ize Pilot o	R (BOTTOM C	Connector CYLINDER PORTS) ** Spacing stand	lard 19,5 m w/ flor	2 Locking	Spacing 2	KD JB JD BA 26 mm (Ree	Square connector with light Rectangular connector Rectangular connector with light Flying leads

O P T I O N S

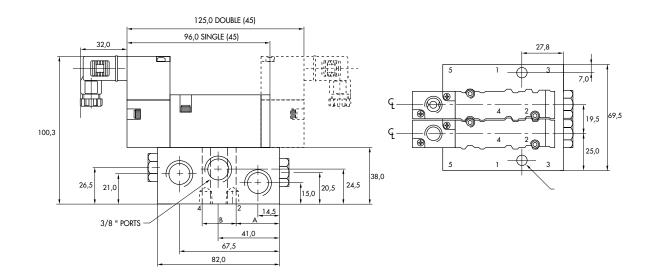
413A-OOA-DM-Dxxx-xxx

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





ECHNICAL						
A T A						
d:	Compressed air, vacu	um, inert gases				
sure range :	Internal pilot : 1.3 - 8.5 BAR					
	External pilot : vacuum - 8.5 BAR					
lot pressure :	1.3 - 8.5 BAR					
ubrication :	Not required, if used	select a medium aniline poi	nt lubricant (between 80°C to 100°C	C)		
iltration :	40 µ					
lemperature range :	0°F to 120°F (-18°C to	o +50°C)				
Orifice :	6.2 mm					
Flow :	1000 NL/min					
Leak rate :	50 cm³/min					
Coil :	General purpose class	A, continuous duty, encaps	ulated			
/oltage range :	-15% to +10% of nomi	nal voltage		-		
Protection :	NEMA 4					
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA				
	= 1.8 to 12.7 W					
tesponse 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-DX	XX-XXX-1, including mount	ing screws 35069 and seal 16524	.4.		
Accessories :	 Blanking plate : M- Mounting screw (x2)) : N-04001. • Seal : 16525.			
Options :	0 1	•				
	 NPTF threads. 	lation of inlet and/or exh	aust.			







Function Port size (BSPP)			Flo	ш (Max)	Circuit bar r	mounting	
2 - 5/3	1	/8" - 1/4"	10	000 NL/min	mid profile - add on style cylinder ports in base		
PERATIONAL B	ENEFITS						_
	lot develops maximum shi	fting forces					
both ways. Memory spri	ng available.						
Balanced spo	ool, immune to variations o	of pressure,					
also provides Short stroke v	with high flow.					2	
	l with minimum friction, sh	nifting in a					TIT
	anced poppet, high flow,	short and					
	ponse times.						
Long service	t eliminates sticking. life.	Reset					
OW TO O	RDER)			
		CUIT BAR MOUNTING		-			
Pilot air	5/2	5/2	5,	/3	5/3		5/3
	Single operator	Double operator		center	Open cen	ter	Pressure center
nternal	<u>113A-OOA-DM-Dxxx-xxx</u>	423A-OOA-DM-DXXX-XXX		M-Dxxx-xxx	463A-OOA-DM-D		473A-OOA-DM-Dxxx-xxx
licitia		4237 007 011 0777-777			400A OOA DIN D	~~~~	4/ 54 004 011 04444
		г		vv *			
DLENOID (OPERATOR >	C) <u>xx x- x</u>	<u>xx</u> *			
DLENOID (OPERATOR >	[x x x x	<u>xx</u> .			
	DPERATOR >	C X Wire length	X X X X		l operator	xx	Electrical connection
XX Vo JB 24	Itage 0/60, 220/50	X Wire length A 45 cm (Flying lead] ,	Manua Non-lock	-	ХХ	Square connector
XX Vo JB 24	Itage	X Wire length] ,	Manua Non-loci	-		Square connector Square connector
XX Vo JB 244 JA 120	ltage 0/60, 220/50 0/60, 110/50	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	КА	Square connector
XX Vo JB 244 JA 120 JC 244	Itage 0/60, 220/50	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD	Square connector Square connector with light Rectangular connector Rectangular connector
XX Vol JB 244 JA 124 JC 244 FB 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W)	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD JB JD	Square connector Square connector with light Rectangular connector Rectangular connector with light
XX Voi JB 244 JA 124 JC 244 FB 244 DA 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W) VDC (5.4 W)	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD JB	Square connector Square connector with light Rectangular connector Rectangular connector
XX Voi JB 244 JA 124 JC 244 FB 244 DA 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W)	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD JB JD	Square connector Square connector with light Rectangular connector Rectangular connector with light
XX Voi JB 244 JA 124 JC 244 FB 244 DA 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W) VDC (5.4 W)	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD JB JD	Square connector Square connector with light Rectangular connector Rectangular connector with light
XX Vo JB 244 JA 120 JC 244 FB 244 DA 244 DF 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W) VDC (5.4 W) VDC (12.7 W)	X Wire length A 45 cm (Flying lead	k (ab	Manua Non-lock	-	KA KD JB JD	Square connector Square connector with light Rectangular connector Rectangular connector with light
XX Vo JB 244 JA 120 JC 244 FB 244 DA 244 DF 244	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W) VDC (5.4 W) VDC (12.7 W)	X Wire length A 45 cm (Flying lead J Connector	k (ab	Manua Non-lock Locking	king	KA KD JB JD BA	Square connector Square connector with light Rectangular connector Rectangular connector with light
XX Vol JB 24/ JA 12/ JC 24, FB 24/ DA 24/ DF 24/ DF 24/	Itage 0/60, 220/50 0/60, 110/50 /60, 24/50 VDC (1.8 W) VDC (1.8 W) VDC (5.4 W) VDC (12.7 W) DER CIRCUIT BAR (BOTTO Pilot air	X Wire length A 45 cm (Flying lead J Connector OM CYLINDER PORTS) ** Spacing stand	ds) 12	Manua Non-lock Locking	king	KA KD JB JD BA 86 mm (Re trols	Square connector Square connector with light Rectangular connector Rectangular connector with light Flying leads

Number of stations (03=3 stations)

** Other options available. Consult factory.

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

O P T I O N S

413A-OOA-DM-Dxxx-xxx

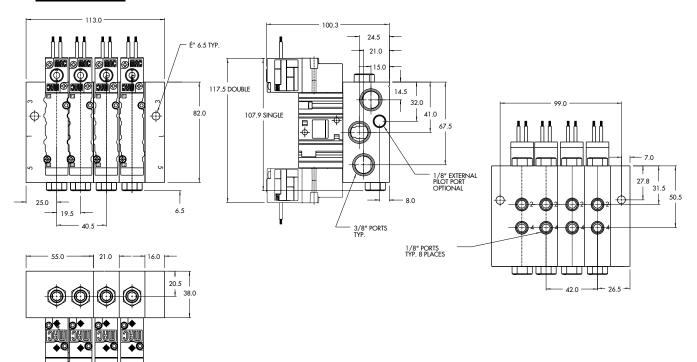
- - clic with memory spring, replace by 6.





Fluid :	Compressed air, vacuu	Compressed air, vacuum, inert gases						
Pressure range :	Internal pilot : 1.3 - 8.	Internal pilot : 1.3 - 8.5 BAR						
	External pilot : vacuum	External pilot : vacuum - 8.5 BAR						
Pilot pressure :	1.3 - 8.5 BAR	1.3 - 8.5 BAR						
Lubrication :	Not required, if used	select a medium aniline poi	nt 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	1000 NL/min						
Leak rate :	50 cm³/min							
Coil :	General purpose class	A, continuous duty, encaps	ulated					
Voltage range :	-15% to +10% of nomi	nal voltage						
Protection :	NEMA 4							
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA						
	= 1.8 to 12.7 W							
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-DX	XX-XXX-1, including mount	ing screws 35069 and seal 16524.					
Accessories :		04002. • Flow control (x2 !) : 35043. • End plate kit	r) : N-04001. • Seal : 16525. t : M-04003-01.					
Options :	0 1	lation of inlet and/or exh						

.





	ort size (BSPP)	Flow (Max)	Circuit bar r	nounting	
1	/8" - 1/4"	1000 N	L/min add-a-unit stations for CBM404A bar		
ITS					
levelops maximum shi vailable. immune to variations i h flow. high flow. th minimum friction, sl l bore.	of pressure, hifting in a				
					Ano
		5/3	5/3		5/3
ingle operator	Double operator	Closed center	Open cen		Pressure center
		┟╧╝┱╲╺╿┰┰┰╢╸╱┰╚	┹ <u>╕</u> <u>┢┻┫╨<u>┥</u>╽┥╨┥╽┥</u>		
A-OOA-DM-DXXX-XXX	423A-OOA-DM-Dxxx-xxx			xxx-xxx	473A-OOA-DM-Dxxx-xxx
RATOR >		╧┰╿╼			
			_	XX	Electrical connection
0, 220/50 0, 110/50	A 45 cm (Flying lead J Connector		-	KA KD	Square connector Square connector
24/50				JB	with light Rectangular connector
(1.8 W)				JD	Rectangular connector
(5.4 W)					with light
				BA	Flying leads
	levelops maximum shi vailable. immune to variations h flow. h flow. h minimum friction, si bore. ad poppet, high flow, se times. minates sticking. R VALVE FOR CIRI 5/2 ingle operator 5/2 ingle operator 1 2 1 1 1 1 1 1 1 1 1 1	levelops maximum shifting forces vailable. immune to variations of pressure, h flow. h flow. h minimum friction, shifting in a lore. ad poppet, high flow, short and se times. minates sticking. R VALVE FOR CIRCUIT BAR MOUNTING 5/2 ingle operator 12 2 4 14 31 5 VOOA-DM-DXXX-XXX RATOR > R VALVE I Length 0, 220/50 A 45 cm (Flying lead 0, 110/50 J Connector	levelops maximum shifting forces vailable. immune to variations of pressure, h flow. h flow. h minimum friction, shifting in a b ore. ad poppet, high flow, short and se times. minates sticking. R VALVE FOR CIRCUIT BAR MOUNTING 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/2 5/3 Closed center $122 \stackrel{14}{2} \stackrel{14}{$	evelops maximum shifting forces vailable. mmune to variations of pressure, h flow. h minimum friction, shifting in a bore. ed poppet, high flow, short and se times. minates sticking.	evelops maximum shifting forces valiable: immune to variations of pressure, h flow. h minimum friction, shifting in a bore. ed poppet, high flow, short and se times. minates sticking. R VALVE FOR CIRCUIT BAR MOUNTING 5/2 ingle operator $2 \frac{5}{1}$ $2 \frac{1}{1}$ $2 \frac{1}{1}$

Number of stations (01, 02, 03, or 04) ** Other options available. Consult factory.

O P T I O N S

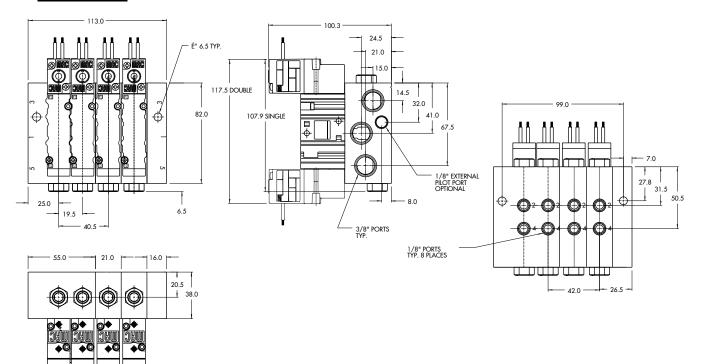
413A-OOA-DM-Dxxx-xxx

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





TECHNICAL							
D A T A							
Fluid :	Compressed air, vacuu	Compressed air, vacuum, inert gases					
Pressure range :	Internal pilot : 1.3 - 8.	5 BAR					
	External pilot : vacuum	n - 8.5 BAR					
Pilot pressure :	1.3 - 8.5 BAR						
Lubrication :	Not required, if used	select a medium aniline poi	nt 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 cm³/min						
Coil :	General purpose class	A, continuous duty, encaps	ulated				
Voltage range :	-15% to +10% of nomi	nal voltage					
Protection :	NEMA 4						
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA					
	= 1.8 to 12.7 W						
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-DX	XX-XXX-1, including mount	ing 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 :	Ū I	lation of inlet and/or exh					





Direct solenoid and solenoid pilot operated valves

Function	Po	rt size (BSPP)	Floш (Max)	Circuit bar mounting	
5/2 - 5/	′3 1/	/8" - 1/4″	1000 NL/min	high profile cylinder ports in base	
OPERATIONA					
both way 2. Memory 3. Balanced also prov 4. Short stro 5. Bonded s glass-like 6. Pilot with consisten 7. Wiping e 8. Long serv	spring available. I spool, immune to variations of rides high flow. spool with high flow. spool with minimum friction, shi finished bore. balanced poppet, high flow, s t response times. effect eliminates sticking.	f pressure, ifting in a			
HOW TO	ORDER VALVE FOR CIRC	UIT BAR MOUNTING			
Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
	$12 \begin{array}{c} 2 \\ 4 \\ 12 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 1$				

	$ \begin{array}{c} 12 \\ 12 \\ 14 \\ 14 \\ 17 \\ 15 \\ 315 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14$				
Internal	413A-OOA-DM-Dxxx-xxx	423A-OOA-DM-Dxxx-xxx	453A-OOA-DM-Dxxx-xxx	463A-OOA-DM-Dxxx-xxx	473A-OOA-DM-Dxxx-xxx
External	413A-OOD-DM-Dxxx-xxx	423A-OOD-DM-Dxxx-xxx	453A-OOD-DM-Dxxx-xxx	463A-OOD-DM-Dxxx-xxx	473A-OOD-DM-Dxxx-xxx

SOLENOID OPERATOR ►

D <u>xx</u> x- <u>x</u> xx^{*}

		_					
xx	Voltage	x	Wire length	x	Manual operator	xx	Electrical connectio
JB	240/60, 220/50	А	45 cm (Flying leads)	1	Non-locking	КА	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50					JB	Rectangular connector
FB	24VDC (1.8 W)					JD	Rectangular connector with light
DA	24VDC (5.4 W)					BA	Flying leads
DF	24VDC (12.7 W)	_					

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

	CIRCUIT BAR (SIDE		
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.

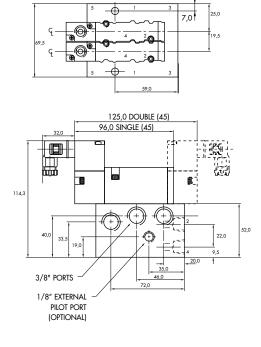
0 P T I 0 N S 413A-OOA-DM-Dxxx-xxx

- clic with memory spring (replace by 6).





TECHNICAL N A T A							
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 cm³/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 Holding : 7.7 VA						
	= 1.8 to 12.7 W						
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.						





Direct solenoid and solenoid pilot operated valves

Function	Po	rt size (BSPP)	Flow (Max)	Circuit bar mounting	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									
both way 2. Memory 3. Balancec also prov 4. Short strc 5. Bonded s glass-like 6. Pilot with consisten	spring available. I spool, immune to variations o vides high flow. ske with high flow. spool with minimum friction, sh finished bore. balanced poppet, high flow, s t response times. effect eliminates sticking.	f pressure, ifting in a							
HOW TO	ORDER								
	ORDER VALVE FOR CIRC	CUIT BAR MOUNTING							
	ORDER VALVE FOR CIRC 5/2 Single operator	CUIT BAR MOUNTING 5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center				
ноw то	ORDER VALVE FOR CIRC	5/2			•				
ноw то	ORDER VALVE FOR CIRC 5/2 Single operator	5/2 Double operator			Pressure center				

D <u>xx</u> x- <u>x</u> xx[·]

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
JB	240/60, 220/50	А	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50					JB	Rectangular connector
FB	24VDC (1.8 W)	_				JD	Rectangular connector with light
DA	24VDC (5.4 W)	_				BA	Flying leads
DF	24VDC (12.7 W)	_				-	

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.

O P T I O N S

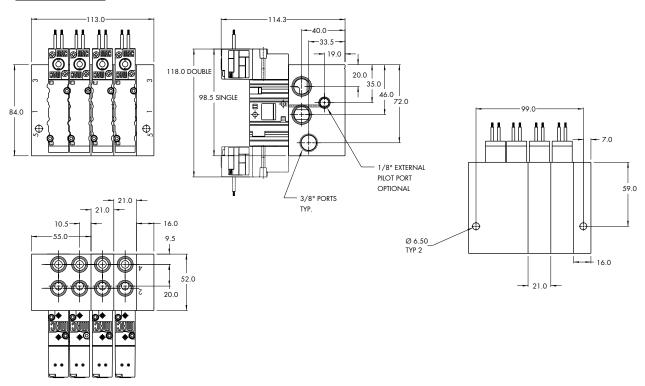
413A-OOA-DM-Dxxx-xxx

clic with memory spring (replace by 6). ____





TECHNICAL							
D A T A	İ						
Fluid :	Compressed air, vacuu	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 poi	nt 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	1000 NL/min					
Leak rate :	50 cm³/min	50 cm³/min					
Coil :	General purpose class	A, continuous duty, encaps	ulated				
Voltage range :	-15% to +10% of nomi	nal voltage					
Protection :	NEMA 4						
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA					
	= 1.8 to 12.7 W	-					
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-DX	XX-XXX-1, including mount	ing 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 : M-04005-01. 					
Options :		lation of inlet and/or exh	·				





Function	Po	rt size (BSPP)	Flow (Max)	Circuit bar mounting		
5/2 - 5/3	3 1/	′8″ - 1/4″	1000 NL/min	add-a-unit stations for CBM405A bar		
OPERATIONAL	BENEFITS					
 The 4-way pilot develops maximum shifting forces both ways. Memory spring available. Balanced spool, immune to variations of pressure, also provides high flow. Short stroke with high flow. Bonded spool with minimum friction, shifting in a glass-like finished bore. Pilot with balanced poppet, high flow, short and consistent response times. Wiping effect eliminates sticking. Long service life. 						
HOW TO	ORDER					
HOW TO (ORDER VALVE FOR CIRC	UIT BAR MOUNTING				
Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Onen center	5/3 Prossure conter	

Pilot air	5/2 Single operator	5/2 Double operator	5/3 Closed center	5/3 Open center	5/3 Pressure center
	$12 \begin{array}{c} 2 \\ 12 \\ 12 \\ 14 \\ 17 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14 \\ 14$	$12 \qquad 2 \qquad 4 \qquad 14 \\ 1/2 \qquad 1 \qquad 7	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c}12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ 12\\ $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Internal	413A-OOA-DM-Dxxx-xxx	423A-OOA-DM-Dxxx-xxx	453A-OOA-DM-Dxxx-xxx	463A-OOA-DM-Dxxx-xxx	473A-OOA-DM-Dxxx-xxx
External	413A-OOD-DM-Dxxx-xxx	423A-OOD-DM-Dxxx-xxx	453A-OOD-DM-Dxxx-xxx	463A-OOD-DM-Dxxx-xxx	473A-OOD-DM-Dxxx-xxx

D <u>XX</u> X- X XX^{*}

xx	Voltage	x	Wire length	x	Manual operator	ХХ	Electrical connection
JB	240/60, 220/50	А	45 cm (Flying leads)	1	Non-locking	KA	Square connector
JA	120/60, 110/50	J	Connector	2	Locking	KD	Square connector with light
JC	24/60, 24/50					JB	Rectangular connector
FB	24VDC (1.8 W)					JD	Rectangular connector with light
DA	24VDC (5.4 W)					BA	Flying leads
DF	24VDC (12.7 W)						

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.

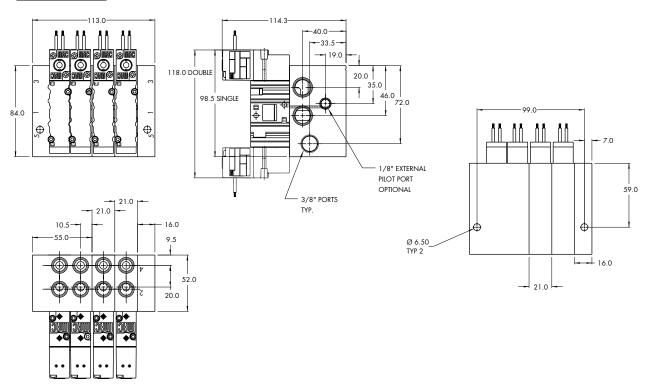
0 P T I 0 N S 413A-OOA-DM-Dxxx-xxx

clic with memory spring (replace by 6).





TECHNICAL					
D A T A	ĺ				
Fluid :	Compressed air, vacuu	ım, inert gases			
Pressure range :	Internal pilot : 1.3 - 8.5 BAR				
	External pilot : vacuum	n - 8.5 BAR			
Pilot pressure :	1.3 - 8.5 BAR				
Lubrication :	Not required, if used	select a medium aniline poi	nt lubricant (between 80°C to 100°C)		
Filtration :	40 µ				
Temperature range :	0°F to 120°F (-18°C to	0°F to 120°F (-18°C to +50°C)			
Orifice :	6.2 mm				
Flow :	1000 NL/min	1000 NL/min			
Leak rate :	50 cm³/min				
Coil :	General purpose class	General purpose class A, continuous duty, encapsulated			
Voltage range :	-15% to +10% of nomi	-15% to +10% of nominal voltage			
Protection :	NEMA 4				
Power :	~ Inrush : 10.9 VA	Holding : 7.7 VA			
	= 1.8 to 12.7 W	-			
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-DX	XX-XXX-1, including mount	ing 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.					





Section 2 Options



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

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VALVE CODE \blacktriangleright

$DM - D\frac{XX}{1}\frac{X}{2} - \frac{X}{3}\frac{XX}{4}$

OPTIONS AVAILABLE FOR

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- pilot operated valves 400, 52 & 92 Series



-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 (5.8 W) DF 12 VDC (18 W) F4 12 VDC (18 W) FF 24 VDC (2.4 W)			1. 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) DF 110 VDC (7.3 W), 100 VDC (6.0 W) DF 48 VDC (5.8 W) FA 12 VDC (1.8 W) FF 12 VDC (2.4 W) FF 24 VDC (2.4 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)	- D XX	X - X XX	VOLTAGE
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)	DB		12 VDC (5.4 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)	DC		12 VDC (7.5 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)	DD		24 VDC (7.3 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)	DE		12 VDC (12.7 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)	DK		110 VDC (5.8 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)	DJ		28 VDC (5.7 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)	DL		64 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)	DM		36 VDC (5.8 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)	DN		6 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)	DR		90 VDC (6,6 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)	DS		110 VDC (7.3 W), 100 VDC (6.0 W)
FA 12 VDC (1.8 W) FE 12 VDC (2.4 W) FF 24 VDC (2.4 W)	DT		75 VDC (5.6 W)
FE 12 VDC (2.4 W) FF 24 VDC (2.4 W)	DP		48 VDC (5.8 W)
FF 24 VDC (2.4 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
В	60 cm
С	90 cm
D	120 cm
E	180 cm
F	240 cm



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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
СА	1/2" NPS conduit
JB	Rectangular connector
JD	Rectangular connector with light
JM	Rectangular connector, male only
KA	Square connector
КВ	Square connector with protection diode
КС	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
ТВ	TA with protection diode
TD	TA with light
TE	TA with light and protection diode
TJ	Dual tabs (male only)
ТК	TJ with protection diode
ТМ	TJ with light
TN	TJ with light and protection diode
* DN	Plug-in with diode
* D P	Plug-in with M.O.V.
* DH	Plug-in with diode & ground
* DJ	Plug-in with M.O.V & ground
* These options only app	ly to the 92 series. All others are for the 400 and 52 series.



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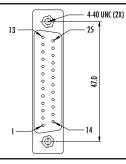
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Connector SUB_D 25 (option ZZZY = SUBY; Y = cable length)



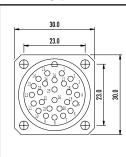


TECHNICAL DATA

- Type «SUB_D»
- Number of contacts : 25
- Solder termination (Dia. 0.6 mm/0.14 mm²/26-22 AWG) ٠
- Operating current 5 A/contact
- Rated voltage 125 V~
 Temp. range -40° to +125°C
- Insulation resistance $\ge 10^{10} \Omega$
- 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)



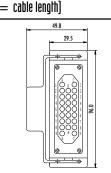


TECHNICAL DATA

- Type «Round connector»
- Number of contacts : 26
- Solder termination (Dia. 1 mm/1 mm²/17 AWG) Operating current 7.5 A/contact •
- ٠
- ٠ Rated voltage 250 V~
- Insulation resistance $\ge 10^8 \ \Omega$
- 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 $\ge 10^{10} \Omega$
- 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



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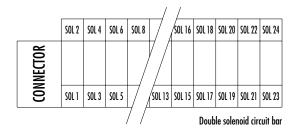
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O P T I O N S
Connector termination details

 VOP
 50L 1
 50L 2
 50L





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

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

BROWN	SOL 1
RED	SOL.2 ∧
PINK	
YELLOW	<u>SOL. 4</u>
WHITE	
GREEN	S SOL. 5 ∧
BLUE	<u>SOL. 6</u>
PURPLE	
GRAY	SOL. 8
WHITE-RED	
BLACK	SOL 9
BROWN-RED	V SOL. 10V
BROWN-BLUE	
BROWN-PINK	
WHITE-PINK	COMMON

GREEN-BROWN	SOL. 13	_^_
GRAY-BROWN	⁴ SOL. 14	V
RED-BLUE		
GRAY-PINK	li SOL. 16	V
WHITE-YELLOW	24 COMMON	
YELLOW-BROWN		_/ _
BROWN-BLACK	SOL. 18	V

WHITE-GRAY	SOL.19	
WHITE-BLUE	N SOL 20	V
WHITE-GREEN	<u> </u>	



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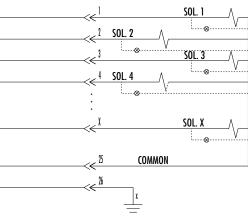
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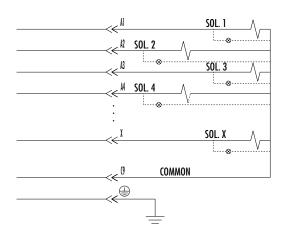
- Type : LIY(C)Y -0.50 mm²
- Dia. ca. 10.8 mm (12 core); 12.9 mm (18 core); 16.0 mm (32 core)
- Insulation resistance : 20 $M\Omega$ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 500 V~
- PVC core insulation and sheath
- Tinned copper wire braid



Connector HDT (option <code>ZZZY</code> = <code>HDTY</code> ; <code>Y</code> = <code>cable length</code>)

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 $M\Omega$ 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 USF -

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 exhausis) meaning the air at both outlet ports is trapped. If trapping the cur 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.
- An supply hist be creat. Containmation of valve can alter upper 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 aritine lubrication is used, consult catalog, parts & operation sheet, or factory for proper del lubrication sheet.
- 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.