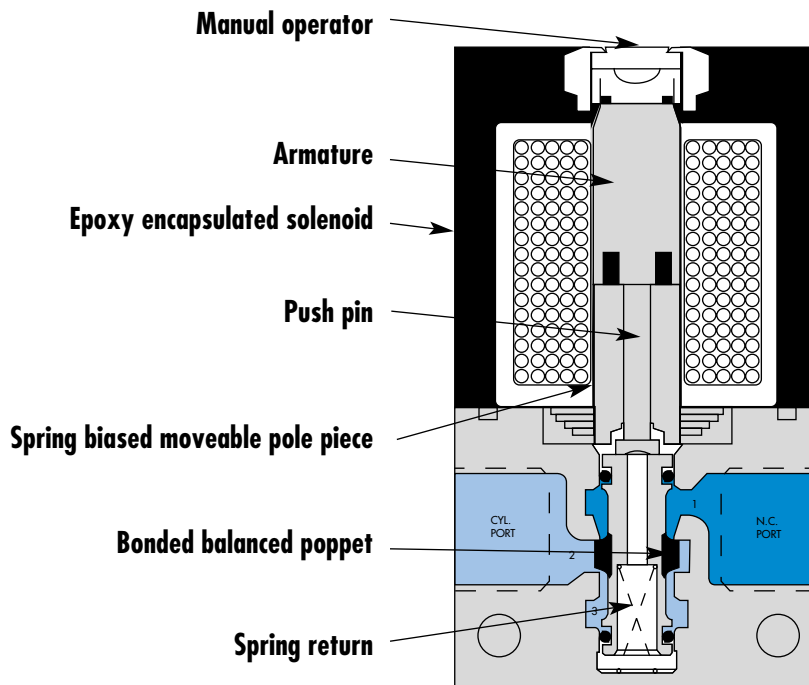


Circuit bar mounting

non plug-in	non plug-in with Pr. Reg.	plug-in	plug-in with side Pr. Reg.	plug-in with integral terminal strip	plug-in with integral terminal strip and side Pr. Reg.
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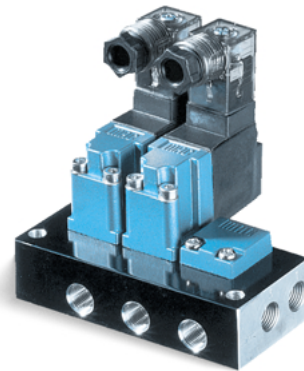
**SERIES FEATURES**

- Patented MACSOLENOID® for fastest possible response times.
- Balanced poppet permits versatility in function :  
- 3 way N.C. - 3 way N.O. - Divertor - Selector
- Extremely high cycle rate capability.
- Various solenoid enclosures and plug-in connectors.
- Low wattage DC solenoids - down to 1.8 watts.
- Rated for lubricated or non-lubricated service.

<b>Function</b>	<b>Port size</b>	<b>Flow [Max]</b>	<b>Circuit bar mounting</b>
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	<b>non plug-in</b>

### OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



### HOW TO ORDER

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

	<b>Universal valve</b>
	
<b>Valve less base</b>	35A-B00-Dxxx-xxx

SOLENOID OPERATOR >

D **XX X- X XX'**

<b>XX Voltage</b>	<b>X Wire length</b>	<b>X Manual operator</b>	<b>XX Electrical connection</b>
<b>AA</b> 120/60, 110/50	<b>A</b> 45 cm (Flying leads)	<b>1</b> Non-locking Recessed	<b>KA</b> Square connector
<b>AB</b> 240/60, 220/50	<b>J</b> Connector	<b>2</b> Locking Recessed	<b>KD</b> Square connector with light
<b>AC</b> 24/60, 24/50			<b>BA</b> Flying leads
<b>FB</b> 24VDC (1.8 W)			
<b>DA</b> 24VDC (5.4 W)			
<b>DF</b> 24VDC (12.7 W)			

HOW TO ORDER CIRCUIT BAR\*\*

<b>Port size</b>	<b>Side cylinder ports Spacing 21 mm</b>	<b>Bottom cylinder ports Spacing 21 mm</b>
<b>1/8" BSPP</b>	EBM35A-001C-xx	EBM35A-002C-xx
<b>M5</b>	EBM35A-001D-xx	EBM35A-002D-xx

Number of stations (03=3 stations)

\*\* Other options available. Consult factory.

Note : clic for valves mounted on base at the factory, add - 9 to the model number.

**TECHNICAL  
DATA**

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Vacuum to 8 BAR		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Orifice :</b>	2 mm		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1.8 W : 80 NL/min, 5.4 W : 100 NL/min		
<b>Leak rate :</b>	50 cm <sup>3</sup> /min		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Nema 4		
<b>Power :</b>	120 VAC/60 = Inrush : 10.9 VA (0.09 AMPS)    Holding : 7.7VA (0.06 AMPS) DC VOLTS = 1.8 W to 12.7 W		
<b>Response times :</b>	24 VDC (5.4W)	Energize : 6 ms	De-energize : 2 ms
	120 VAC	Energize : 3-8 ms	De-energize : 2-7 ms

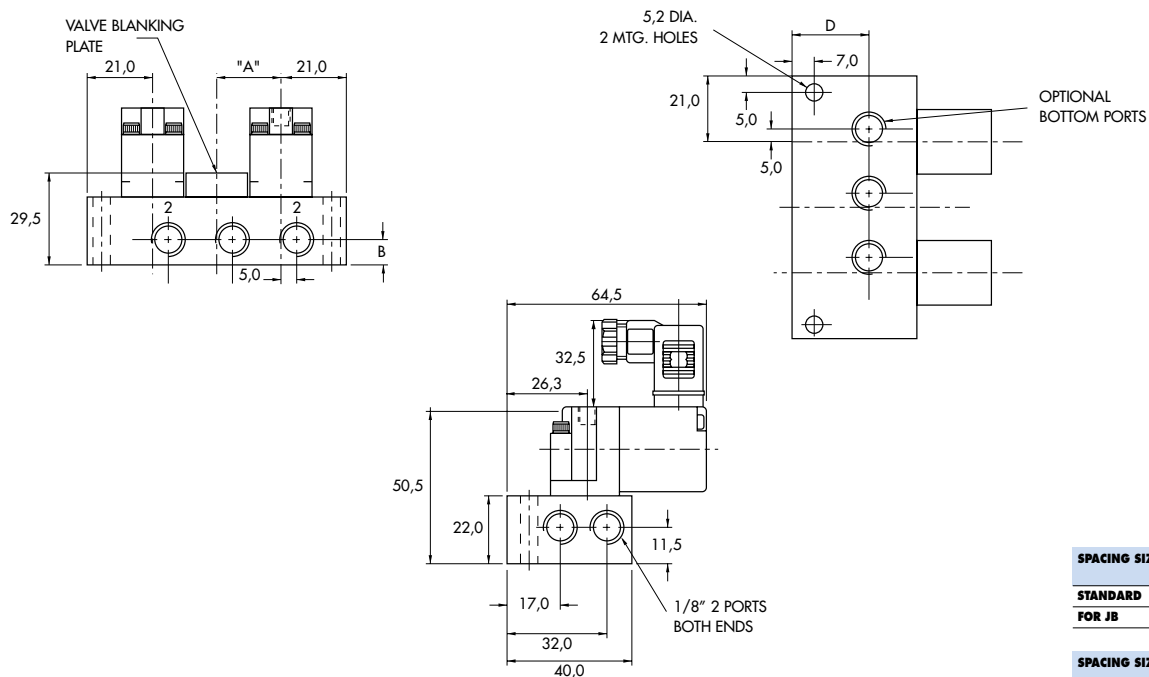
Spare parts :

- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and valve body : 16402. • Seal between base and valve : 16447.
- Valve mounting screw (x2) : 35020. • Blanking plate valve : M-35004.

Options :

- NPTF threads. • High flow up to 140 NL/min, according to wattage. • Isolation of inlet and/or exhaust.

**DIMENSIONS**

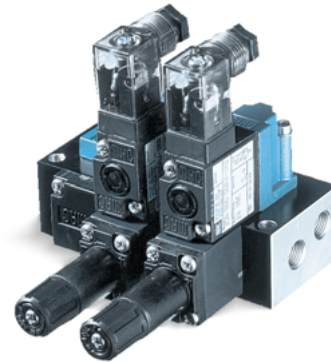


SPACING SIZE	A	
STANDARD	21.0	
FOR JB	26.0	
SPACING SIZE	B	D
1/8"	8.0	24.5
# 10-32	5.5	24.2

<b>Function</b>	<b>Port size</b>	<b>Flow [Max]</b>	<b>Circuit bar mounting</b>
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	non plug-in with Pr. Reg.

### OPERATIONAL BENEFITS


1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



Reset

### HOW TO ORDER

HOW TO ORDER VALVE FOR CIRCUIT BAR MOUNTING

	<b>Universal valve</b>
	
<b>Valve less base</b>	35A-B00-Dxxx-xxx
<b>Valve less base w/ gage port</b>	35A-F00-Dxxx-xxx

SOLENOID OPERATOR >

D **XX X- X XX**

XX	Voltage	X	Wire length	X	Manual operator	XX	Electrical connection
AA	120/60, 110/50	A	45 cm (Flying leads)	1	Non-locking Recessed	KA	Square connector
AB	240/60, 220/50	J	Connector	2	Locking Recessed	KD	Square connector with light
AC	24/60, 24/50					BA	Flying leads
FB	24VDC (1.8 W)						
DA	24VDC (5.4 W)						
DF	24VDC (12.7 W)						

HOW TO ORDER CIRCUIT BAR WITH PRESSURE REGULATORS (TO BE ORDERED SEPARATELY)\* \*

Port size Side cylinder ports	Spacing 21 mm	Spacing 40 mm
<b>1/8" BSPP</b>	EBM35A-003C-xx	EBM35A-023C-xx
<b>M5</b>	EBM35A-003D-xx	EBM35A-023D-xx
Port size Bottom cylinder ports	Spacing 21 mm	Spacing 40 mm
<b>1/8" BSPP</b>	EBM35A-004C-xx	EBM35A-024C-xx
<b>M5</b>	EBM35A-004D-xx	EBM35A-024D-xx

Number of stations (03=3 stations)

Other options available. Consult factory.

Note : clic for valves mounted on base at the factory, add - 9 to the model number.  
use 40 mm spacing for valves w/ gage port.

\*\* Pressure Regulators :

- 35A-00M (Adjusting knob)
- 35A-00L (Slotted stem)
- 35A-00U (Locking stem)

**TECHNICAL  
DATA**

<b>Fluid :</b>	Compressed air, vacuum, inert gases
<b>Pressure range :</b>	Vacuum to 8 BAR
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)
<b>Filtration :</b>	40 µ
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)
<b>Orifice :</b>	2 mm
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1.8 W : 80 NL/min, 5.4 W : 100 NL/min
<b>Leak rate :</b>	50 cm <sup>3</sup> /min
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated
<b>Voltage range :</b>	-15% to +10% of nominal voltage
<b>Protection :</b>	Nema 4
<b>Power :</b>	120 VAC/60 = Inrush : 10.9 VA (0.09 AMPS)    Holding : 7.7VA (0.06 AMPS) DC VOLTS = 1.8 W to 12.7 W
<b>Response times :</b>	24 VDC (5.4W)    Energize : 6 ms    De-energize : 2 ms 120 VAC    Energize : 3-8 ms    De-energize : 2-7 ms

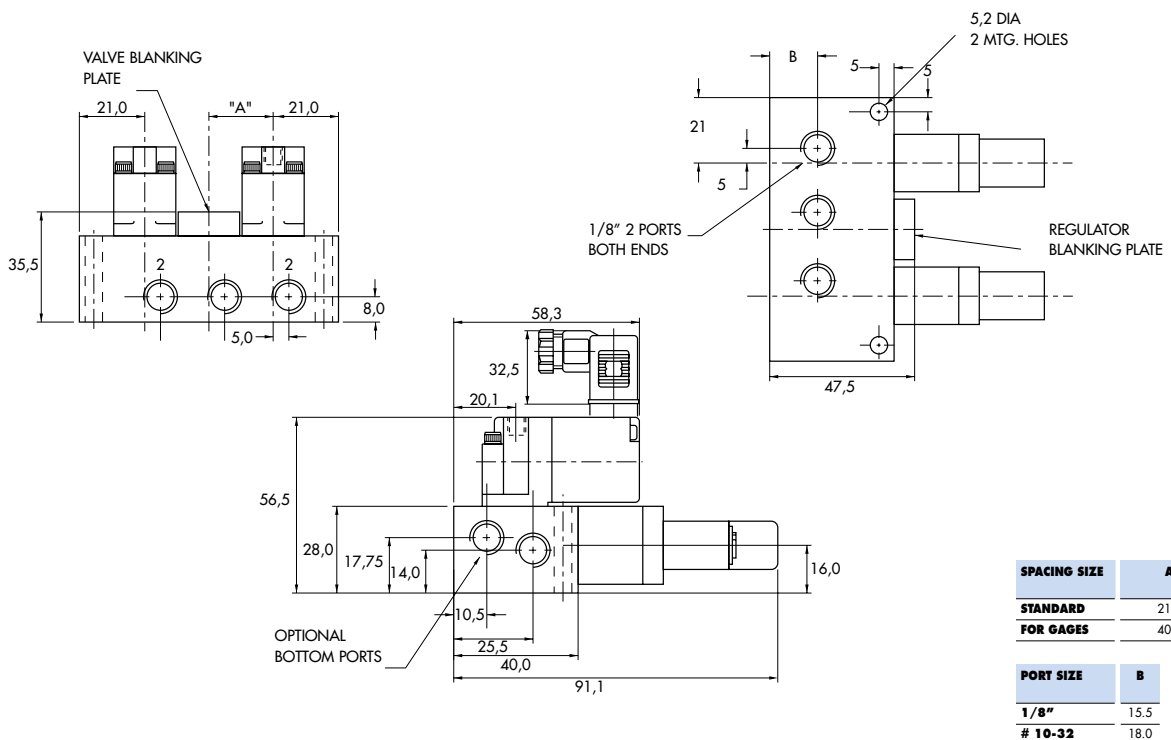
Spare parts :

- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and valve body : 16402. • Seal between base and valve : 16447.
- Valve mounting screw (x2) : 35020. • Blanking plate valve : M-35004. • Blanking plate regulator : M-35005.

Options :

- NPTF threads. • High flow up to 140 NL/min, according to wattage. • Isolation of inlet and/or exhaust.

**DIMENSIONS**



<b>Function</b>	<b>Port size</b>	<b>Flow [Max]</b>	<b>Circuit bar mounting</b>
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	<b>plug-in</b>

### OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



### HOW TO ORDER

HOW TO ORDER VALVE FOR "PLUG-IN" CIRCUIT BAR

<b>Valve less base</b>	<b>Universal valve</b>
	 35A-B00-DxxJ-xFM

SOLENOID OPERATOR >

D **XX** J- **X** FM \*

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

HOW TO ORDER "PLUG-IN" CIRCUIT BAR \*\*

<b>Port size</b>	<b>Spacing mm</b>	<b>Side cylinder ports</b>	<b>Bottom cylinder ports</b>
<b>1/8" BSPP</b>	21	ECD35A-001C-A0-xx*	ECD35A-002C-A0-xx*
<b>M5</b>	21	ECD35A-001D-A0-xx*	ECD35A-002D-A0-xx*
<b>1/8" BSPP</b>	30	ECD35A-031C-C0-xx*	ECD35A-032C-C0-xx*
<b>M5</b>	30	ECD35A-031D-C0-xx*	ECD35A-032D-C0-xx*

Number of stations (03=3 stations)

\*\* Other options available. Consult factory.

Note : clic for valves mounted on base at the factory, add - 9 to the model number.  
 clic for multi-pin connector (9, 15 or 25).

- \* A0 = without light
- AA = with light (120V)
- AB = with light (240V)
- AD = with light (24V)
- C0 = terminal strip
- CA = terminal w/light (120V)
- CB = terminal w/light (240V)
- CD = terminal w/light (24V)

**TECHNICAL  
DATA**

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Vacuum to 8 BAR		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Orifice :</b>	2 mm		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1.8 W : 80 NL/min, 5.4 W : 100 NL/min		
<b>Leak rate :</b>	50 cm <sup>3</sup> /min		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Nema 4		
<b>Power :</b>	120 VAC/60 = Inrush : 10.9 VA (0.09 AMPS)    Holding : 7.7VA (0.06 AMPS) DC VOLTS = 1.8 W to 12.7 W		
<b>Response times :</b>	24 VDC (5.4W)	Energize : 6 ms	De-energize : 2 ms
	120 VAC	Energize : 3-8 ms	De-energize : 2-7 ms

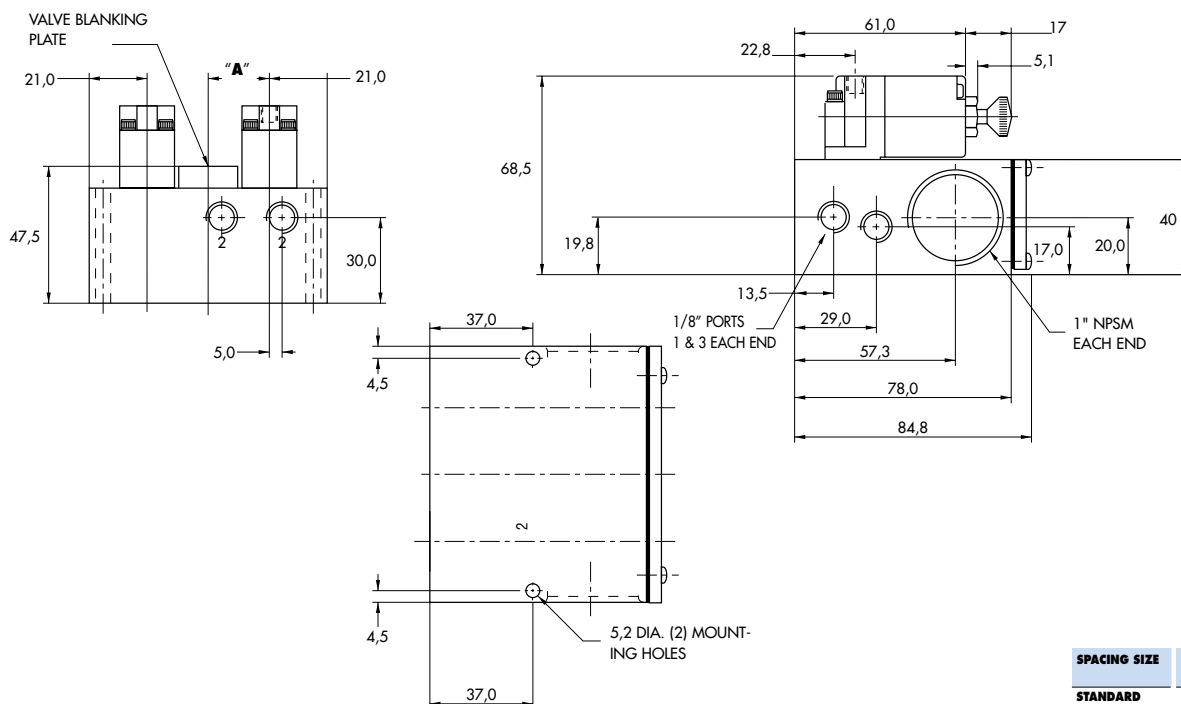
Spare parts :

- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and valve body : 16402. • Seal between base and valve : 16447.
- Valve mounting screw (x2) : 35020. • Blanking plate valve : M-35004. • Plug-in protector : 16520.

Options :

- NPTF threads. • High flow up to 140 NL/min, according to wattage. • Isolation of inlet and/or exhaust.

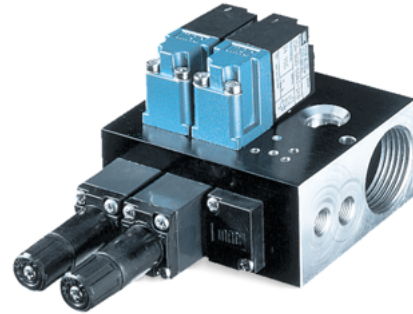
**DIMENSIONS**



Function	Port size	Flow [Max]	Circuit bar mounting
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	plug-in with side Pr. Reg.

### OPERATIONAL BENEFITS

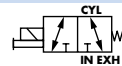
1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



### HOW TO ORDER

HOW TO ORDER VALVE FOR "PLUG-IN" CIRCUIT BAR

	Universal valve
Valve less base	35A-B00-DxxJ-xFM
Valve less base w/ gage port	35A-F00-DxxJ-xFM



### SOLENOID OPERATOR >

D **XX** J- **X** FM \*

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

HOW TO ORDER "PLUG-IN" CIRCUIT BAR WITH PRESSURE REGULATORS (TO BE ORDERED SEPARATELY)\* \*\*

Port size	Spacing mm	Bottom cylinder ports
<b>1/8" BSPP</b>	21	ECD35A-004C-A0-xx*
<b>M5</b>	21	ECD35A-004D-A0-xx*
<b>1/8" BSPP</b>	30	ECD35A-034C-C0-xx*
<b>M5</b>	30	ECD35A-034D-C0-xx*
<b>1/8" BSPP</b>	40	ECD35A-024C-A0-xx*
<b>M5</b>	40	ECD35A-024D-A0-xx*

Number of stations (03=3 stations)

\*\* Other options available. Consult factory.

Note : clic for valves mounted on base at the factory, add - 9 to the model number.  
 clic for multi-pin connector (9, 15 or 25).  
 minimum spacing for terminal strips is 30 mm.  
 use 40 mm spacing for valves w/gage port.

\*\* Pressure Regulators :

- 35A-00M (Adjusting knob)
- 35A-00L (Slotted stem)
- 35A-00U (Locking stem)

- \* A0 = without light
- AA = with light (120V)
- AB = with light (240V)
- AD = with light (24V)
- C0 = terminal strip
- CA = terminal w/light (120V)
- CB = terminal w/light (240V)
- CD = terminal w/light (24V)

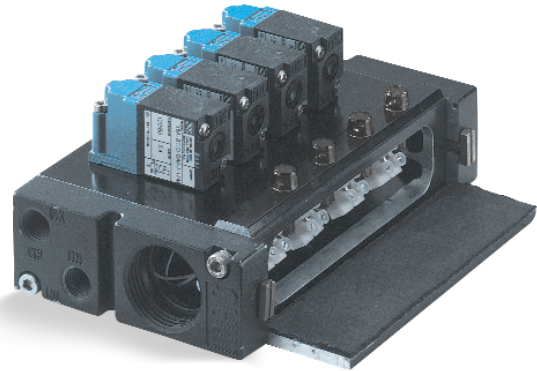




<b>Function</b>	<b>Port size</b>	<b>Flow [Max]</b>	<b>Circuit bar mounting</b>
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	plug-in with integral terminal strip

### OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



### HOW TO ORDER

HOW TO ORDER VALVE FOR "PLUG-IN" CIRCUIT BAR

	<b>Universal valve</b>
	
<b>Valve less base</b>	35A-B00-DxxJ-xFM

SOLENOID OPERATOR >

D **XX** J- **X** FM\*

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

HOW TO ORDER "PLUG-IN" CIRCUIT BAR \*\*

<b>Port size</b>	<b>Spacing mm</b>	<b>Side cylinder ports</b>	<b>Bottom cylinder ports</b>
<b>1/8" BSPP</b>	26	ECE35A-011C-C0-xx*	ECE35A-012C-C0-xx*
<b>M5</b>	26	ECE35A-011D-C0-xx*	ECE35A-012D-C0-xx*

Number of stations (03=3 stations)

\*\* Other options available. Consult factory.

Note : clic for valves mounted on base at the factory, add - 9 to the model number.  
end plate kit required: M-45017.

\* C0 = terminal strip  
CA = terminal strip w/light (120V)  
CB = terminal strip w/light (240V)  
CD = terminal strip w/light (24V)

**TECHNICAL  
DATA**

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Vacuum to 8 BAR		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Orifice :</b>	2 mm		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1.8 W : 80 NL/min, 5.4 W : 100 NL/min		
<b>Leak rate :</b>	50 cm <sup>3</sup> /min		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Nema 4		
<b>Power :</b>	120 VAC/60 = Inrush : 10.9 VA (0.09 AMPS)    Holding : 7.7VA (0.06 AMPS) DC VOLTS = 1.8 W to 12.7 W		
<b>Response times :</b>	24 VDC (5.4W)	Energize : 6 ms	De-energize : 2 ms
	120 VAC	Energize : 3-8 ms	De-energize : 2-7 ms

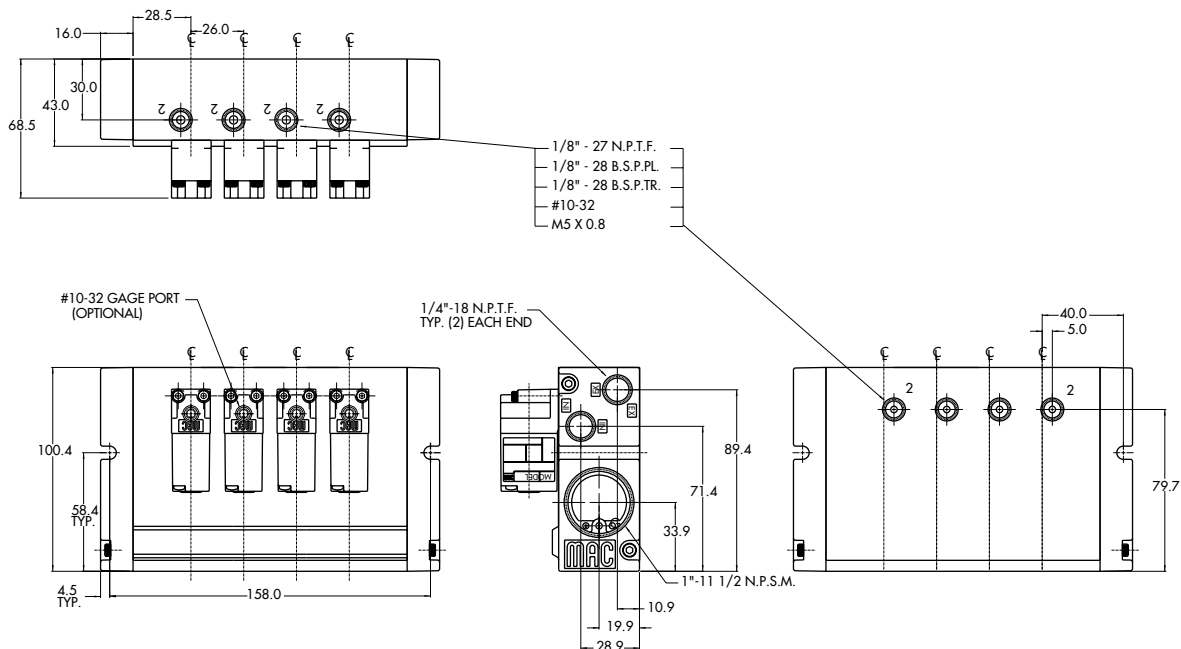
Spare parts :

- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and valve body : 16402. • Seal between base and valve : 16447.
- Valve mounting screw (x2) : 35020. • Blanking plate valve : M-35004. • Plug-in protector : 16520.

Options :

- NPTF threads. • High flow up to 140 NL/min, according to wattage. • Isolation of inlet and/or exhaust.

**DIMENSIONS**



Note: Bottom & side cylinder ports not available on the same station

Function	Port size	Flow [Max]	Circuit bar mounting
<b>3/2 NO-NC</b>	<b>1/8" BSPP - M5</b>	<b>100 NL/min</b>	plug-in with integral terminal strip and side Pr. Reg.

### OPERATIONAL BENEFITS

1. Balanced poppet, immune to variations of pressure.
2. Short stroke with high flow.
3. The patented solenoid develops high shifting forces.
4. Powerful return spring.
5. Manual operator standard on all valves.
6. Burn-out proof solenoid on AC service.



### HOW TO ORDER

HOW TO ORDER VALVE FOR "PLUG-IN" CIRCUIT BAR

	Universal valve
<b>Valve less base</b>	35A-B00-DxxJ-xFM
<b>Valve less base w/ gage port</b>	35A-F00-DxxJ-xFM



SOLENOID OPERATOR >

D **XX** J- **X** FM \*

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

HOW TO ORDER "PLUG-IN" CIRCUIT BAR WITH PRESSURE REGULATORS (TO BE ORDERED SEPARATELY) \*\*

Port size	Spacing mm	Bottom cylinder ports
<b>1/8" BSPP</b>	26	ECE35A-014C-C0-xx*
<b>M5</b>	26	ECE35A-014D-C0-xx*
<b>1/8" BSPP</b>	40	ECE35A-024C-C0-xx*
<b>M5</b>	40	ECE35A-024D-C0-xx*

Number of stations (03=3 stations)  
 Note : clic for valves mounted on base at the factory, add - 9 to the model number.  
 use 40 mm spacing for valves w/ gage port.  
 end plate kit required: M-45017.

\*\* Pressure Regulators :  
 35A-00M (Adjusting knob)  
 35A-00L (Slotted stem)  
 35A-00U (Locking stem)

\* C0 = terminal strip  
 CA = terminal strip w/light (120V)  
 CB = terminal strip w/light (240V)  
 CD = terminal strip w/light (24V)

### TECHNICAL DATA

<b>Fluid :</b>	Compressed air, vacuum, inert gases		
<b>Pressure range :</b>	Vacuum to 8 BAR		
<b>Lubrication :</b>	Not required, if used select a medium aniline point lubricant (between 80°C and 100°C)		
<b>Filtration :</b>	40 µ		
<b>Temperature range :</b>	0°F to 120°F (-18°C to 50°C)		
<b>Orifice :</b>	2 mm		
<b>Flow (at 6 bar, ΔP=1bar) :</b>	1.8 W : 80 NL/min, 5.4 W : 100 NL/min		
<b>Leak rate :</b>	50 cm <sup>3</sup> /min		
<b>Coil :</b>	General purpose class A, continuous duty, encapsulated		
<b>Voltage range :</b>	-15% to +10% of nominal voltage		
<b>Protection :</b>	Nema 4		
<b>Power :</b>	120 VAC/60 = Inrush : 10.9 VA (0.09 AMPS)    Holding : 7.7VA (0.06 AMPS) DC VOLTS = 1.8 W to 12.7 W		
<b>Response times :</b>	24 VDC (5.4W)	Energize : 6 ms	De-energize : 2 ms
	120 VAC	Energize : 3-8 ms	De-energize : 2-7 ms

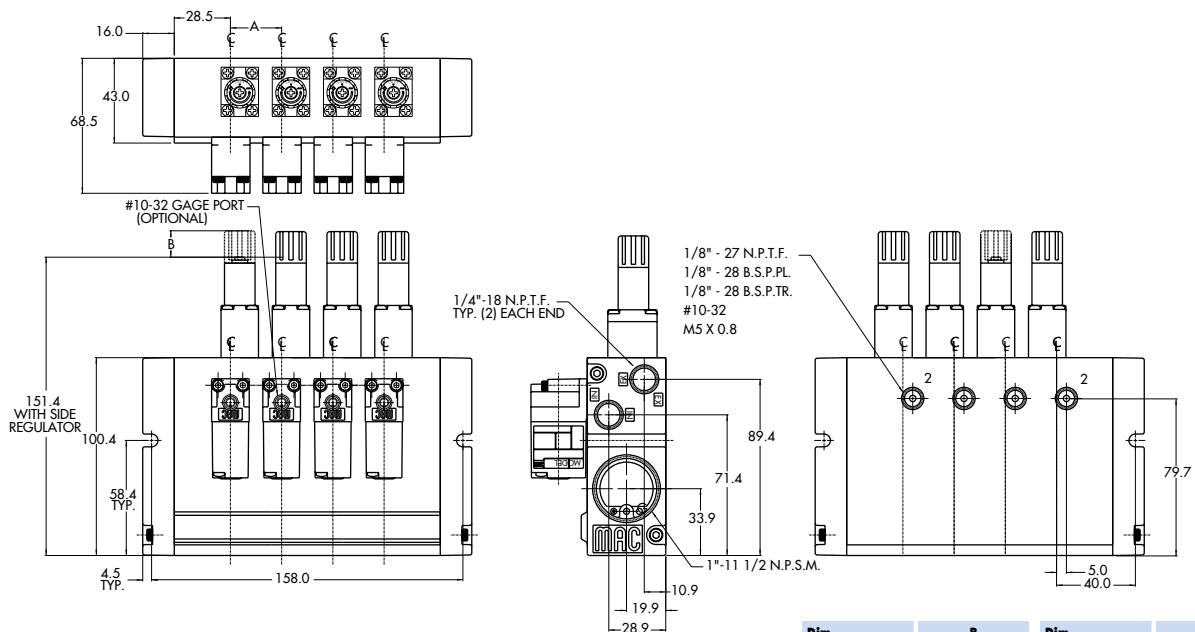
**Spare parts :**

- Solenoid operator (power ≥ 5.4 W) : DXXX-XXX, including mounting screws 35013.
- Seal between solenoid and valve body : 16402. • Seal between base and valve : 16447.
- Valve mounting screw (x2) : 35020. • Blanking plate valve : M-35004. • Blanking plate regulator : M-35005.
- Plug-in protector : 16520.

**Options :**

- NPTF threads. • High flow up to 140 NL/min, according to wattage. • Isolation of inlet and/or exhaust.

### DIMENSIONS



Dim.	B	Dim.	A
<b>SLOTTED LOCKING STEM</b>	6.0	<b>STANDARD SPACING</b>	26.0
<b>ADJUSTABLE KNOB</b>	13.4	<b>SPACING FOR GAUGES</b>	40.0



## Section 2 Options



0 p t i o n s

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

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VALVE CODE ➤

**-DXX X - X XX**  
**1 2 3 4**

**OPTIONS AVAILABLE FOR**

- Solenoid valves 35 & 45 Series

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## 1. VOLTAGE

- D XX	X - X XX	VOLTAGE
AD		24/60
AE		200/60
AF		240/50
AG		100/50, 100/60, 110/60
DB		12 VDC (5.4 W)
DC		12 VDC (7.5 W)
DD		24 VDC (7.3 W)
DE		12 VDC (12.7 W) CLSF
DK		110 VDC (5.8 W)
DL		64 VDC (6.0 W)
DM		36 VDC (5.8 W)
DN		6 VDC (6.0 W)
DP		48 VDC (5.8 W)
DU		24 VDC (6.0 W)
EA		12 VDC (6.0 W)
FA		12 VDC (1.8 W)
FE		12 VDC (2.4 W)
FF		24 VDC (2.4 W)

## 2. WIRE LENGTH

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



### 3. MANUAL OPERATOR

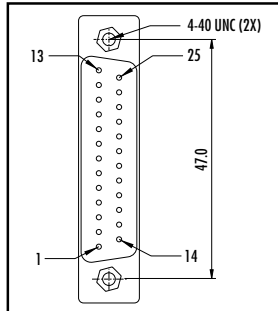
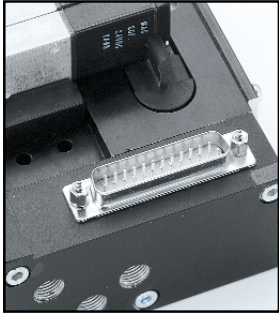
- D XX X - X XX	MANUAL OPERATOR
<b>0</b>	No operator
<b>1</b>	Non-locking recessed
<b>2</b>	Locking recessed
<b>3</b>	Non-locking extended
<b>4</b>	Locking extended

### 4. ELECTRICAL CONNECTION

- D XX X - X XX	ELECTRICAL CONNECTION
<b>BA</b>	Flying leads
<b>BK</b>	BA with protection diode
<b>BL</b>	BA with protection varistor
<b>CA</b>	1/2" NPS conduit
<b>*FN</b>	Plug-in with diode
<b>*FP</b>	Plug-in with M.O.V.
<b>JB</b>	Rectangular connector
<b>JD</b>	Rectangular connector with light
<b>JM</b>	Rectangular connector, male only
<b>KA</b>	Square connector
<b>KB</b>	Square connector with protection diode
<b>KC</b>	Square connector with protection varistor
<b>KD</b>	Square connector with light
<b>KE</b>	Square connector with light and protection diode
<b>KF</b>	Square connector with light and protection varistor
<b>KJ</b>	Square connector (male only)
<b>KK</b>	Square connector with protection diode (male only)
<b>KL</b>	Square connector with protection varistor (male only)
<b>TA</b>	Dual tabs
<b>TB</b>	TA with protection diode
<b>TD</b>	TA with light
<b>TE</b>	TA with light and protection diode
<b>TJ</b>	Dual tabs (male only)
<b>TK</b>	TJ with protection diode
<b>TM</b>	TJ with light
<b>TN</b>	TJ with light and protection diode

\* For use with the ECD and ECE style circuit bars.

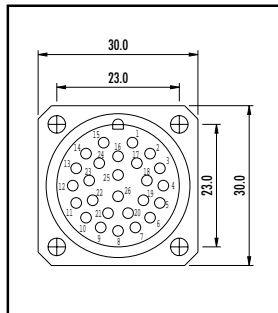
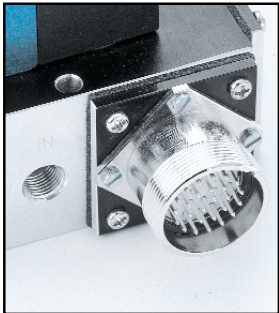
Connector SUB\_D 25 (option ZZZY = SUBY ; Y = cable length)



TECHNICAL DATA

- Type «SUB\_D»
- Number of contacts : 25
- Solder termination (Dia. 0.6 mm/0.14 mm<sup>2</sup>/26-22 AWG)
- Operating current 5 A/contact
- Rated voltage 125 V~
- Temp. range -40° to +125°C
- Insulation resistance  $\geq 10^{10} \Omega$
- 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

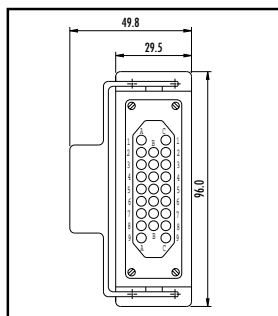
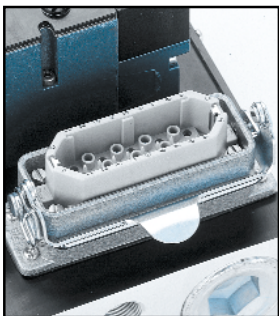
Connector RND (option ZZZY = RNDY ; Y = cable length)



TECHNICAL DATA

- Type «Round connector»
- Number of contacts : 26
- Solder termination (Dia. 1 mm/1 mm<sup>2</sup>/17 AWG)
- Operating current 7.5 A/contact
- Rated voltage 250 V~
- Insulation resistance  $\geq 10^8 \Omega$
- 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

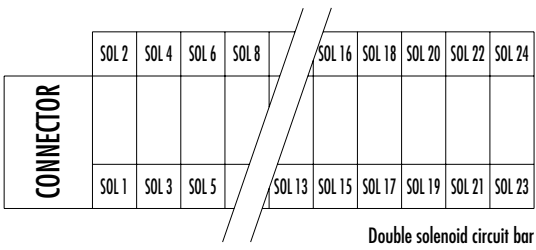
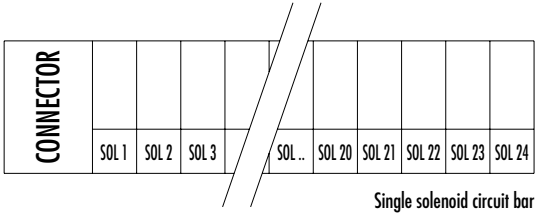
Connector HDT (option ZZZY = HDTY ; Y = cable length)



TECHNICAL DATA

- Type «Heavy duty»
- Number of contacts : 25
- Solder termination (Dia. 1.4 mm/0.75 mm<sup>2</sup>/18 AWG)
- Operating current 10 A/contact
- Rated voltage 250 V~
- Insulation resistance  $\geq 10^{10} \Omega$
- 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

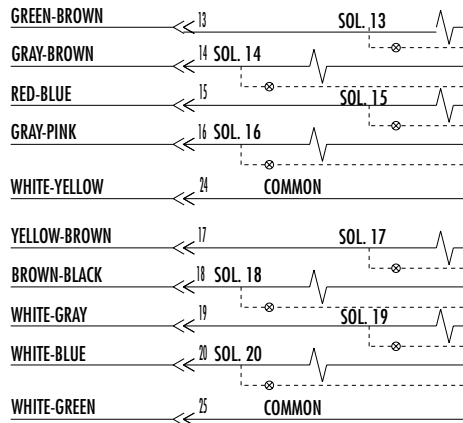
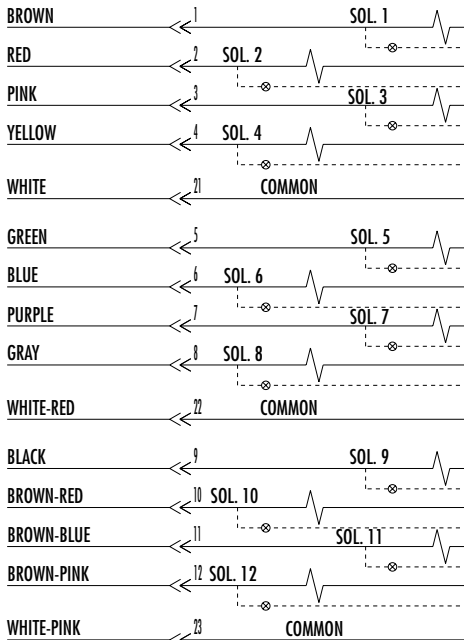
Connector termination details



Connector SUB\_025 [option ZZZY = SUBY ; Y = cable length]

TECHNICAL DATA PREWIRED CABLE

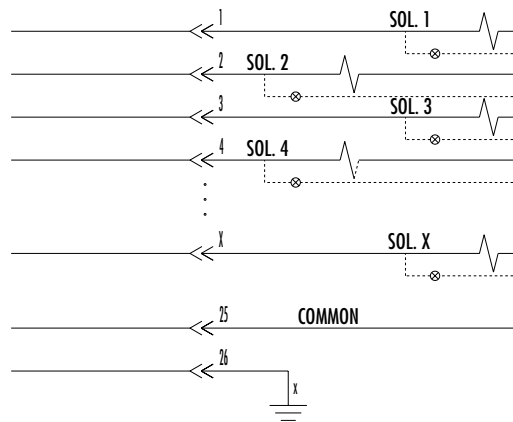
- Type : LIYY -0.14 mm<sup>2</sup>
- Dia. ca. 9.3 mm
- Insulation resistance : 20 MΩ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 250 V~
- PVC core insulation and sheath



**Connector RND (option ZZZY = SNDY ; Y = cable length)**

**TECHNICAL DATA PREWIRED CABLE**

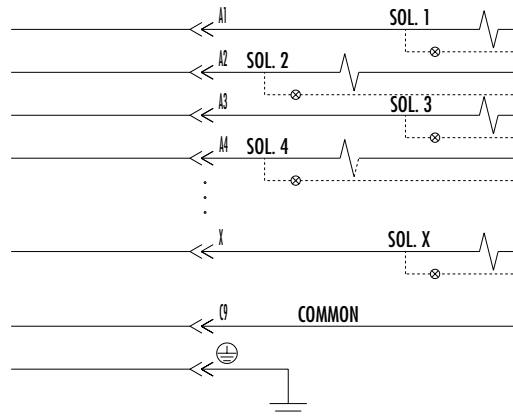
- Type : LIY(C)Y -0.50 mm<sup>2</sup>
- Dia. ca. 10.8 mm (12 core); 12.9 mm (18 core); 16.0 mm (32 core)
- Insulation resistance : 20 MΩ for 1000 meter
- Temp. range -5° to +80°C
- Rated voltage : 500 V~
- PVC core insulation and sheath
- Tinned copper wire braid



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

**TECHNICAL DATA PREWIRED CABLE**

- Type : LIY(C)Y -0.75 mm<sup>2</sup>
- 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.