

Алматы (7273)495-231  
 Ангарск (3955)60-70-56  
 Архангельск (8182)63-90-72  
 Астрахань (8512)99-46-04  
 Барнаул (3852)73-04-60  
 Белгород (4722)40-23-64  
 Благовещенск (4162)22-76-07  
 Брянск (4832)59-03-52  
 Владивосток (423)249-28-31  
 Владикавказ (8672)28-90-48  
 Владимир (4922)49-43-18  
 Вологда (8172)26-41-59  
 Воронеж (473)204-51-73  
 Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
 Ижевск (3412)26-03-58  
 Иркутск (395)279-98-46  
 Казань (843)206-01-48  
 Калининград (4012)72-03-81  
 Калуга (4842)92-23-67  
 Кемерово (3842)65-04-62  
 Киров (8332)68-02-04  
 Коломна (4966)23-41-49  
 Кострома (4942)77-07-48  
 Краснодар (861)203-40-90  
 Красноярск (391)204-63-61  
 Курск (4712)77-13-04  
 Курган (3522)50-90-47  
 Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
 Москва (495)268-04-70  
 Мурманск (8152)59-64-93  
 Набережные Челны (8552)20-53-41  
 Нижний Новгород (831)429-08-12  
 Новокузнецк (3843)20-46-81  
 Ноябрьск (3496)41-32-12  
 Новосибирск (383)227-86-73  
 Омск (3812)21-46-40  
 Орел (4862)44-53-42  
 Оренбург (3532)37-68-04  
 Пенза (8412)22-31-16  
 Петрозаводск (8142)55-98-37  
 Псков (8112)59-10-37  
 Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
 Рязань (4912)46-61-64  
 Самара (846)206-03-16  
 Санкт-Петербург (812)309-46-40  
 Саратов (845)249-38-78  
 Севастополь (8692)22-31-93  
 Саранск (8342)22-96-24  
 Симферополь (3652)67-13-56  
 Смоленск (4812)29-41-54  
 Сочи (862)225-72-31  
 Ставрополь (8652)20-65-13  
 Сургут (3462)77-98-35  
 Сыктывкар (8212)25-95-17  
 Тамбов (4752)50-40-97  
 Тверь (4822)63-31-35

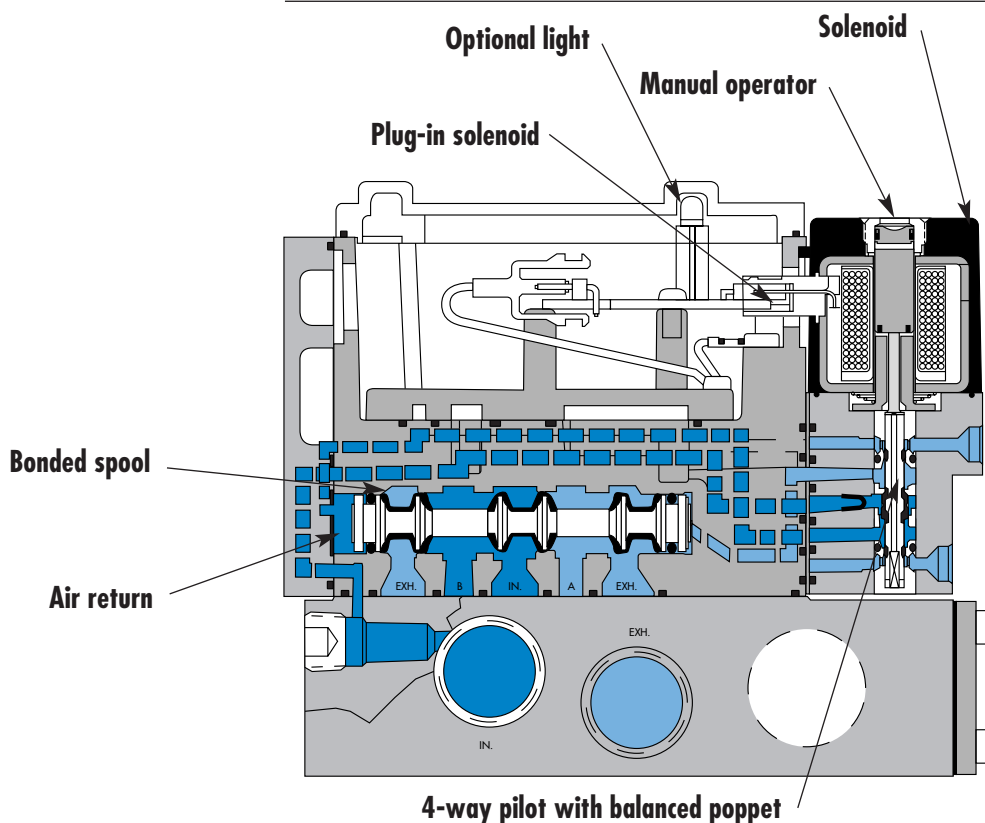
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 Ульяновск (8422)24-23-59  
 Улан-Удэ (3012)59-97-51  
 Уфа (347)229-48-12  
 Хабаровск (4212)92-98-04  
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 Чита (3022)38-34-83  
 Якутск (4112)23-90-97  
 Ярославль (4852)69-52-93

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## SERIES FEATURES

- Patented MACSOLENOID® for fastest possible response times and virtually burn-out proof AC solenoid operation.
- Optional low watt DC solenoids.
- Optional memory spring.
- Plug-in design of valves and bases for ease of maintenance.
- 2 position or 3 position valve configurations.

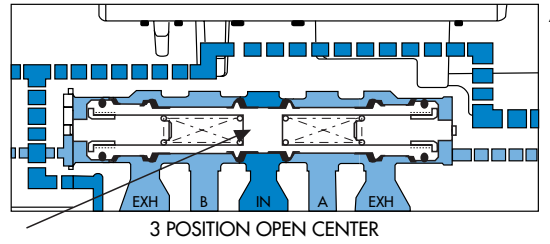
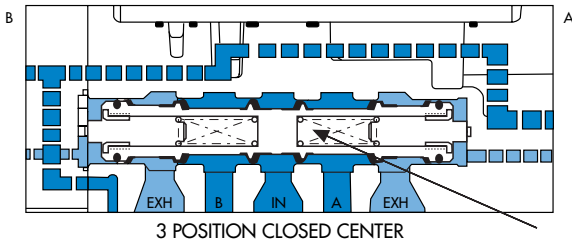
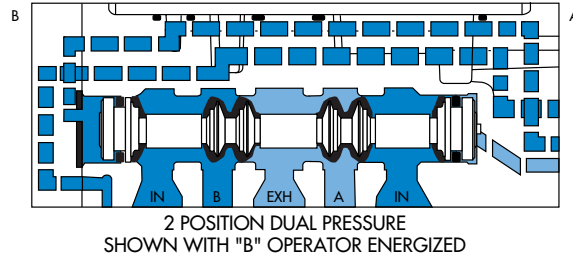
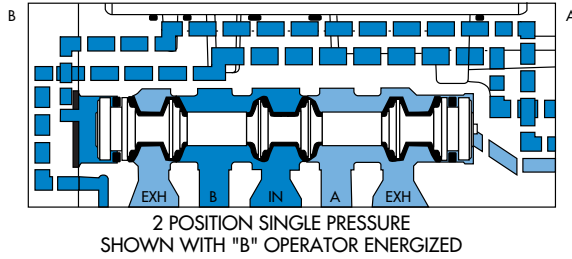
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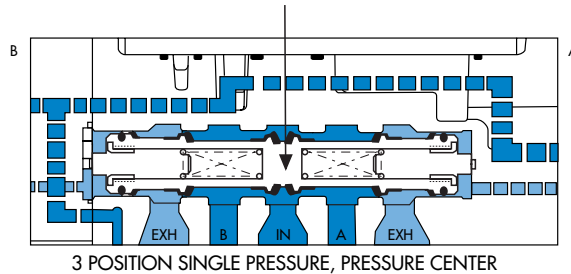
93

ISO 01  
ISO 02  
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## SPOOL CONFIGURATIONS



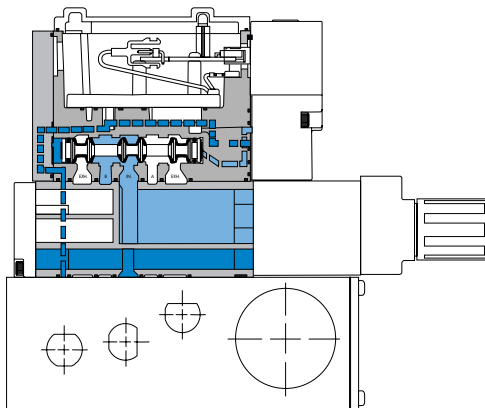
## SPRING CENTERING



## REGULATOR CONFIGURATIONS

### SINGLE REGULATOR - SINGLE PRESSURE

Pressure supplied to the individual or manifold base passes through the regulator. Regulated pressure is supplied to the pressure path of the valve.

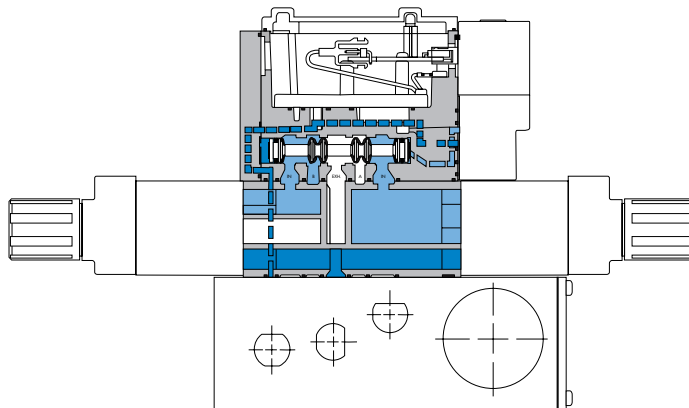


### MANIFOLD WITH REGULATOR - SINGLE PRESSURE

**Note:** For both single and dual pressure, air supply to the pilot system is never regulated.

### DUAL REGULATOR - DUAL PRESSURE

Pressure supplied from each regulator is divided in the block. Regulated pressure from "A" regulator supplies cylinder port "A". Regulated pressure from "B" regulator supplies cylinder port "B". Dual pressure regulators require dual pressure spool in valve.



### MANIFOLD WITH REGULATOR - DUAL PRESSURE

| Function        | Port size                 | Flow [Max]               | Individual mounting    | Series |
|-----------------|---------------------------|--------------------------|------------------------|--------|
| <b>5/2, 5/3</b> | <b>1/8" - 1/4" - 3/8"</b> | <b>1.2 C<sub>v</sub></b> | Sub-base non "plug-in" |        |

## OPERATIONAL BENEFITS

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



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ISO 2

ISO 3

## HOW TO ORDER

### SINGLE PRESSURE MODELS

| Port size              | Pilot air | 5/2 Single operator     | 5/2 Double operator     | 5/3 Closed center       | 5/3 Open center         | 5/3 Pressure center     |
|------------------------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                        |           |                         |                         |                         |                         |                         |
| <b>Valve less base</b> |           | 92B-ABA-000-DM-Dxxx-xxx | 92B-BBA-000-DM-Dxxx-xxx | 92B-EBA-000-DM-Dxxx-xxx | 92B-FBA-000-DM-Dxxx-xxx | 92B-GBA-000-DM-Dxxx-xxx |
| <b>1/8" NPTF</b>       | Internal  | 92B-ABA-AAG-DM-Dxxx-xxx | 92B-BBA-AAG-DM-Dxxx-xxx | 92B-EBA-AAG-DM-Dxxx-xxx | 92B-FBA-AAG-DM-Dxxx-xxx | 92B-GBA-AAG-DM-Dxxx-xxx |
| <b>1/4" NPTF</b>       |           | 92B-ABA-BAG-DM-Dxxx-xxx | 92B-BBA-BAG-DM-Dxxx-xxx | 92B-EBA-BAG-DM-Dxxx-xxx | 92B-FBA-BAG-DM-Dxxx-xxx | 92B-GBA-BAG-DM-Dxxx-xxx |
| <b>3/8" NPTF</b>       |           | 92B-ABA-CAG-DM-Dxxx-xxx | 92B-BBA-CAG-DM-Dxxx-xxx | 92B-EBA-CAG-DM-Dxxx-xxx | 92B-FBA-CAG-DM-Dxxx-xxx | 92B-GBA-CAG-DM-Dxxx-xxx |
| <b>1/8" NPTF</b>       | External  | 92B-ABA-AAH-DM-Dxxx-xxx | 92B-BBA-AAH-DM-Dxxx-xxx | 92B-EBA-AAH-DM-Dxxx-xxx | 92B-FBA-AAH-DM-Dxxx-xxx | 92B-GBA-AAH-DM-Dxxx-xxx |
| <b>1/4" NPTF</b>       |           | 92B-ABA-BAH-DM-Dxxx-xxx | 92B-BBA-BAH-DM-Dxxx-xxx | 92B-EBA-BAH-DM-Dxxx-xxx | 92B-FBA-BAH-DM-Dxxx-xxx | 92B-GBA-BAH-DM-Dxxx-xxx |
| <b>3/8" NPTF</b>       |           | 92B-ABA-CAH-DM-Dxxx-xxx | 92B-BBA-CAH-DM-Dxxx-xxx | 92B-EBA-CAH-DM-Dxxx-xxx | 92B-FBA-CAH-DM-Dxxx-xxx | 92B-GBA-CAH-DM-Dxxx-xxx |

### DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

| Port size              | Pilot air | 5/2 Single operator     | 5/2 Double operator     |
|------------------------|-----------|-------------------------|-------------------------|
|                        |           |                         |                         |
| <b>Valve less base</b> |           | 92B-CBA-000-DM-Dxxx-xxx | 92B-DBA-000-DM-Dxxx-xxx |
| <b>1/8" NPTF</b>       | Internal  | 92B-CBA-AAG-DM-Dxxx-xxx | 92B-DBA-AAG-DM-Dxxx-xxx |
| <b>1/4" NPTF</b>       |           | 92B-CBA-BAG-DM-Dxxx-xxx | 92B-DBA-BAG-DM-Dxxx-xxx |
| <b>3/8" NPTF</b>       |           | 92B-CBA-CAG-DM-Dxxx-xxx | 92B-DBA-CAG-DM-Dxxx-xxx |
| <b>1/8" NPTF</b>       | External  | 92B-CBA-AAH-DM-Dxxx-xxx | 92B-DBA-AAH-DM-Dxxx-xxx |
| <b>1/4" NPTF</b>       |           | 92B-CBA-BAH-DM-Dxxx-xxx | 92B-DBA-BAH-DM-Dxxx-xxx |
| <b>3/8" NPTF</b>       |           | 92B-CBA-CAH-DM-Dxxx-xxx | 92B-DBA-CAH-DM-Dxxx-xxx |

### SOLENOID OPERATOR ►

DM-D **xxx-xxx\***

Above models are shown with side ports.

| XX | Voltage                | X | Wire length        | X | Manual operator      | XX | Electrical connection            |
|----|------------------------|---|--------------------|---|----------------------|----|----------------------------------|
| JA | 110 /50, 120/60 (2.9W) | A | 18" (Flying leads) | 1 | Non-locking recessed | BM | Flying leads                     |
| JB | 220/50, 240/60 (2.9W)  | B | 24" (Flying leads) | 2 | Locking recessed     | BN | Flying leads with diode          |
| JC | 24/60 (2.9W)           | J | Connector          |   |                      | BP | Flying leads with M.O.V.         |
| FB | 24 VDC (1.8W)          |   |                    |   |                      | BG | Flying leads with ground         |
| DA | 24 VDC (5.4W)          |   |                    |   |                      | JB | Rectangular connector            |
| DF | 24 VDC (12.7W)         |   |                    |   |                      | JD | Rectangular connector with light |
|    |                        |   |                    |   |                      | KA | Square connector                 |

\* Other options available, see page 309.

Other options available for the 92 series valves, see page 155.

# TECHNICAL DATA

|                     |                                                                                                                                      |  |  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Fluid :             | Compressed air, vacuum, inert gases                                                                                                  |  |  |
| Pressure range :    | Internal pilot : 20 to 120 PSI      3 position : 35 to 120 PSI<br>External pilot : vacuum to 120 PSI      3 position : 35 to 120 PSI |  |  |
| Lubrication :       | Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)                                              |  |  |
| Filtration :        | 40 µ                                                                                                                                 |  |  |
| Temperature range : | 0°F to 120°F (-18°C to +50°C)                                                                                                        |  |  |
| Flow :              | 1/8": (1.0 C <sub>v</sub> ) – 1/4": (1.1 C <sub>v</sub> ) – 3/8": (1.2 C <sub>v</sub> )                                              |  |  |
| Coil :              | Class A continuous duty, #22 AWG x 18 lead wire                                                                                      |  |  |
| Voltage range :     | -15% to +10% of nominal voltage                                                                                                      |  |  |
| Protection :        | Consult factory                                                                                                                      |  |  |
| Power :             | ~Inrush 7.6 VA      Holding : 4.8 VA<br>= 1.8 to 12.7 W                                                                              |  |  |
| Response times :    | 24V=5.4W      Energize : 8 ms      De-energize : 7 ms<br>120/60      Energize : 7-13 ms      De-energize : 12-20 ms                  |  |  |

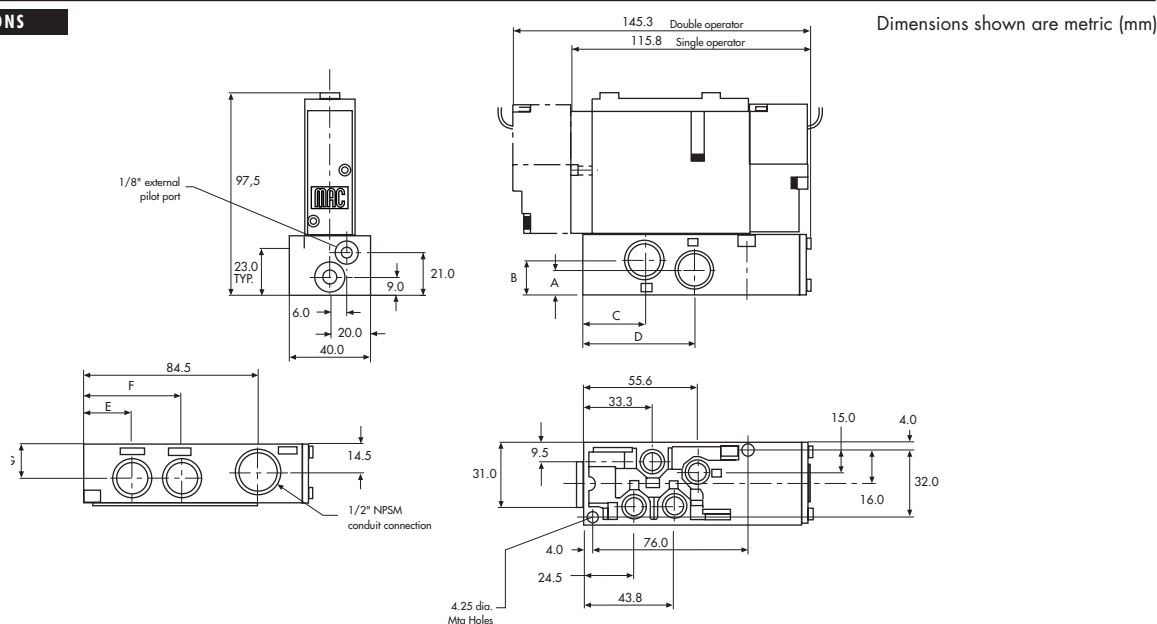
Options :

- BSPP threads • Sandwich flow control: FC92B-CA

Spare parts :

- Pilot valve DM-Dxxx-xxx • Valve blanking plate: M-92002
- Pressure seal between valve and base : 16543. • Mounting screws valve to base (X2) : 35050.

# DIMENSIONS



| DIM. | A    | B    | C    | D    | E    | F    | G    |
|------|------|------|------|------|------|------|------|
| 1/8" | 12.5 | 18.0 | 31.0 | 54.0 | 23.5 | 46.5 | 18.0 |
| 1/4" | 12.5 | 18.0 | 31.0 | 54.0 | 23.5 | 46.5 | 18.0 |
| 3/8" | 12.0 | 17.0 | 30.0 | 54.0 | 23.5 | 47.5 | 17.0 |

| Function        | Port size                 | Flow [Max]               | Individual mounting | Series |
|-----------------|---------------------------|--------------------------|---------------------|--------|
| <b>5/2, 5/3</b> | <b>1/8" - 1/4" - 3/8"</b> | <b>1.2 C<sub>v</sub></b> | Sub-base "plug-in"  |        |

## OPERATIONAL BENEFITS

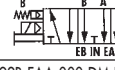
1. The 4-way pilot develops maximum shifting forces both ways.
2. Memory spring available.
3. Balanced spool, immune to variations of pressure, also provides high flow.
4. Short stroke with high flow.
5. Bonded seal spool with minimum friction, shifting in a glass-like finished bore.
6. Pilot with balanced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



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## HOW TO ORDER

### SINGLE PRESSURE MODELS

| Port size              | Pilot air | 5/2<br>Single operator                                                              | 5/2<br>Double operator                                                              | 5/3<br>Closed center                                                                | 5/3<br>Open center                                                                    | 5/3<br>Pressure center                                                                |
|------------------------|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                        |           |  |  |  |  |  |
| <b>Valve less base</b> |           | 92B-AAA-000-DM-DxxP-xxx                                                             | 92B-BAA-000-DM-DxxP-xxx                                                             | 92B-EAA-000-DM-DxxP-xxx                                                             | 92B-FAA-000-DM-DxxP-xxx                                                               | 92B-GAA-000-DM-DxxP-xxx                                                               |
| <b>1/8"</b>            | Internal  | 92B-AAA-AAA-DM-DxxP-xxx                                                             | 92B-BAA-AAA-DM-DxxP-xxx                                                             | 92B-EAA-AAA-DM-DxxP-xxx                                                             | 92B-FAA-AAA-DM-DxxP-xxx                                                               | 92B-GAA-AAA-DM-DxxP-xxx                                                               |
| <b>1/4"</b>            |           | 92B-AAA-BAA-DM-DxxP-xxx                                                             | 92B-BAA-BAA-DM-DxxP-xxx                                                             | 92B-EAA-BAA-DM-DxxP-xxx                                                             | 92B-FAA-BAA-DM-DxxP-xxx                                                               | 92B-GAA-BAA-DM-DxxP-xxx                                                               |
| <b>3/8"</b>            |           | 92B-AAA-CAA-DM-DxxP-xxx                                                             | 92B-BAA-CAA-DM-DxxP-xxx                                                             | 92B-EAA-CAA-DM-DxxP-xxx                                                             | 92B-FAA-CAA-DM-DxxP-xxx                                                               | 92B-GAA-CAA-DM-DxxP-xxx                                                               |
| <b>1/8"</b>            | External  | 92B-AAA-AAD-DM-DxxP-xxx                                                             | 92B-BAA-AAD-DM-DxxP-xxx                                                             | 92B-EAA-AAD-DM-DxxP-xxx                                                             | 92B-FAA-AAD-DM-DxxP-xxx                                                               | 92B-GAA-AAD-DM-DxxP-xxx                                                               |
| <b>1/4"</b>            |           | 92B-AAA-BAD-DM-DxxP-xxx                                                             | 92B-BAA-BAD-DM-DxxP-xxx                                                             | 92B-EAA-BAD-DM-DxxP-xxx                                                             | 92B-FAA-BAD-DM-DxxP-xxx                                                               | 92B-GAA-BAD-DM-DxxP-xxx                                                               |
| <b>3/8"</b>            |           | 92B-AAA-CAD-DM-DxxP-xxx                                                             | 92B-BAA-CAD-DM-DxxP-xxx                                                             | 92B-EAA-CAD-DM-DxxP-xxx                                                             | 92B-FAA-CAD-DM-DxxP-xxx                                                               | 92B-GAA-CAD-DM-DxxP-xxx                                                               |

### DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

| Port size              | Pilot air | 5/2<br>Single operator                                                              | 5/2<br>Double operator                                                                |
|------------------------|-----------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                        |           |  |  |
| <b>Valve less base</b> |           | 92B-CAA-000-DM-DxxP-xxx                                                             | 92B-DAA-000-DM-DxxP-xxx                                                               |
| <b>1/8"</b>            | Internal  | 92B-CAA-AAA-DM-DxxP-xxx                                                             | 92B-DAA-AAA-DM-DxxP-xxx                                                               |
| <b>1/4"</b>            |           | 92B-CAA-BAA-DM-DxxP-xxx                                                             | 92B-DAA-BAA-DM-DxxP-xxx                                                               |
| <b>3/8"</b>            |           | 92B-CAA-CAA-DM-DxxP-xxx                                                             | 92B-DAA-CAA-DM-DxxP-xxx                                                               |
| <b>1/8"</b>            | External  | 92B-CAA-AAD-DM-DxxP-xxx                                                             | 92B-DAA-AAD-DM-DxxP-xxx                                                               |
| <b>1/4"</b>            |           | 92B-CAA-BAD-DM-DxxP-xxx                                                             | 92B-DAA-BAD-DM-DxxP-xxx                                                               |
| <b>3/8"</b>            |           | 92B-CAA-CAD-DM-DxxP-xxx                                                             | 92B-DAA-CAD-DM-DxxP-xxx                                                               |

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### SOLENOID OPERATOR ➤

DM-D **XX** P-**xxx**\*

Above models are shown with side ports.

| XX Voltage                        | X Manual operator             | XX Electrical connection               |
|-----------------------------------|-------------------------------|----------------------------------------|
| <b>JA</b> 110 / 50, 120/60 (2.9W) | <b>1</b> Non-locking recessed | <b>DM</b> Plug-in                      |
| <b>JB</b> 220/50, 240/60 (2.9W)   | <b>2</b> Locking recessed     | <b>DN</b> Plug-in with diode           |
| <b>JC</b> 24/60 (2.9W)            |                               | <b>DP</b> Plug-in with M.O.V.          |
| <b>FB</b> 24 VDC (1.8W)           |                               | <b>DG</b> Plug-in with ground          |
| <b>DA</b> 24 VDC (5.4W)           |                               | <b>DJ</b> Plug-in with M.O.V. & ground |
| <b>DF</b> 24 VDC (12.7W)          |                               | <b>DH</b> Plug-in with diode & ground  |

\* Other options available, see page 309.

Note: Ground required for 30 Volts or higher.

Other options available for the 92 series valves, see page 156.

# TECHNICAL DATA

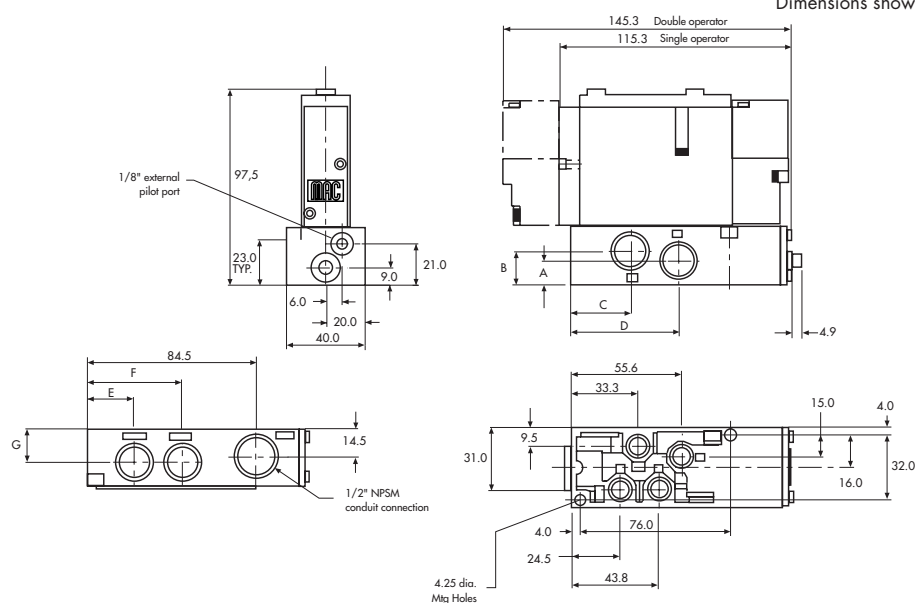
|                     |                                                                                                                                      |  |  |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Fluid :             | Compressed air, vacuum, inert gases                                                                                                  |  |  |
| Pressure range :    | Internal pilot : 20 to 120 PSI      3 position : 35 to 120 PSI<br>External pilot : vacuum to 120 PSI      3 position : 35 to 120 PSI |  |  |
| Lubrication :       | Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)                                              |  |  |
| Filtration :        | 40 µ                                                                                                                                 |  |  |
| Temperature range : | 0°F to 120°F (-18°C to +50°C)                                                                                                        |  |  |
| Flow :              | 1/8": (1.0 C <sub>v</sub> ) – 1/4": (1.1 C <sub>v</sub> ) – 3/8": (1.2 C <sub>v</sub> )                                              |  |  |
| Coil :              | Class A continuous duty, #22 AWG x 18 lead wire                                                                                      |  |  |
| Voltage range :     | -15% to +10% of nominal voltage                                                                                                      |  |  |
| Protection :        | Consult factory                                                                                                                      |  |  |
| Power :             | ~Inrush 7.6 VA      Holding : 4.8 VA<br>= 1.8 to 12.7 W                                                                              |  |  |
| Response times :    | 24V=5.4W      Energize : 8 ms      De-energize : 7 ms<br>120/60      Energize : 7-13 ms      De-energize : 12-20 ms                  |  |  |

Options : • BSPP threads • Sandwich flow control: FC92B-AA (sgl. operator), FC92B-BA (dbl. operator)

Spare parts : • Pilot valve DM-DxxP-xxx • Valve blanking plate: M-92002  
• Pressure seal between valve and base : 16543. • Mounting screws valve to base (X2) : 35050.

# DIMENSIONS

Dimensions shown are metric (mm)



| DIM. | A    | B    | C    | D    | E    | F    | G    |
|------|------|------|------|------|------|------|------|
| 1/8" | 12.5 | 18.0 | 31.0 | 54.0 | 23.5 | 46.5 | 18.0 |
| 1/4" | 12.5 | 18.0 | 31.0 | 54.0 | 23.5 | 46.5 | 18.0 |
| 3/8" | 12.0 | 17.0 | 30.0 | 54.0 | 23.5 | 47.5 | 17.0 |

| Function        | Port size          | Flow [Max]               | Manifold mounting      | Series |
|-----------------|--------------------|--------------------------|------------------------|--------|
| <b>5/2, 5/3</b> | <b>1/4" - 3/8"</b> | <b>1.2 C<sub>v</sub></b> | Sub-base non "plug-in" |        |

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

### SINGLE PRESSURE MODELS

| Port size              | Pilot air | 5/2<br>Single operator  | 5/2<br>Double operator  | 5/3<br>Closed center    | 5/3<br>Open center      | 5/3<br>Pressure center  |
|------------------------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                        |           |                         |                         |                         |                         |                         |
| <b>Valve less base</b> |           | 92B-ABA-000-DM-DXXX-XXX | 92B-BBA-000-DM-DXXX-XXX | 92B-EBA-000-DM-DXXX-XXX | 92B-FBA-000-DM-DXXX-XXX | 92B-GBA-000-DM-DXXX-XXX |
| <b>1/4" NPTF</b>       | Internal  | 92B-ABA-BJG-DM-DXXX-XXX | 92B-BBA-BJG-DM-DXXX-XXX | 92B-EBA-BJG-DM-DXXX-XXX | 92B-FBA-BJG-DM-DXXX-XXX | 92B-GBA-BJG-DM-DXXX-XXX |
| <b>3/8" NPTF</b>       |           | 92B-ABA-CJG-DM-DXXX-XXX | 92B-BBA-CJG-DM-DXXX-XXX | 92B-EBA-CJG-DM-DXXX-XXX | 92B-FBA-CJG-DM-DXXX-XXX | 92B-GBA-CJG-DM-DXXX-XXX |

### DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

| Port size              | Pilot air | 5/2<br>Single operator  | 5/2<br>Double operator  |
|------------------------|-----------|-------------------------|-------------------------|
|                        |           |                         |                         |
| <b>Valve less base</b> |           | 92B-CBA-000-DM-DXXX-XXX | 92B-DBA-000-DM-DXXX-XXX |
| <b>1/4" NPTF</b>       | Internal  | 92B-CBA-BJG-DM-DXXX-XXX | 92B-DBA-BJG-DM-DXXX-XXX |
| <b>3/8" NPTF</b>       |           | 92B-CBA-CJG-DM-DXXX-XXX | 92B-DBA-CJG-DM-DXXX-XXX |

Above models are shown with side ports.

### SOLENOID OPERATOR ➤

DM-D **XXX-XXX\***

| XX | Voltage                | X | Wire length        | X | Manual operator      | XX | Electrical connection       |
|----|------------------------|---|--------------------|---|----------------------|----|-----------------------------|
| JA | 110 /50, 120/60 (2.9W) | A | 18" (flying leads) | 1 | Non-locking recessed | KA | Square connector            |
| JB | 220/50, 240/60 (2.9W)  | J | Connector          | 2 | Locking recessed     | KD | Square connector with light |
| JC | 24/60 (2.9W)           |   |                    |   |                      | JB | Rectangular connector       |
| FB | 24 VDC (1.8W)          |   |                    |   |                      | JD | Rect. connector with light  |
| DA | 24 VDC (5.4W)          |   |                    |   |                      | BA | Flying leads                |
| DF | 24 VDC (12.7W)         |   |                    |   |                      | BK | Flying leads with diode     |

\* Other options available, see page 309.  
End plate kit required (port size 3/8"): M-92004-01-01 (internal pilot)  
M-92004-02-01 (External pilot)

Other options available for the 92 series valves, see page 155.



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48P

48

400

92

93

ISO 01

ISO 02

ISO 1

ISO 2

ISO 3

## TECHNICAL DATA

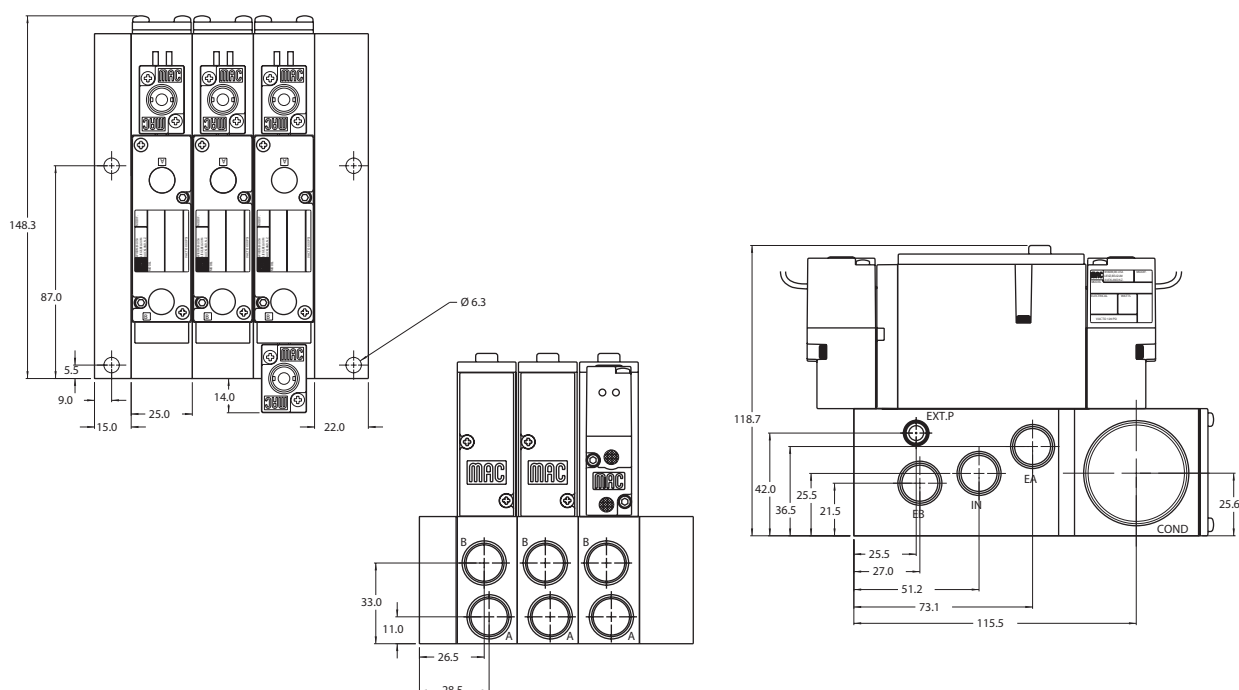
|                     |                                                                                                                                      |                    |                        |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|
| Fluid :             | Compressed air, vacuum, inert gases                                                                                                  |                    |                        |
| Pressure range :    | Internal pilot : 20 to 120 PSI      3 position : 35 to 120 PSI<br>External pilot : vacuum to 120 PSI      3 position : 35 to 120 PSI |                    |                        |
| Lubrication :       | Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)                                              |                    |                        |
| Filtration :        | 40 µ                                                                                                                                 |                    |                        |
| Temperature range : | 0°F to 120°F (-18°C to +50°C)                                                                                                        |                    |                        |
| Flow :              | 1/4": (1.1 C <sub>v</sub> ) – 3/8": (1.2 C <sub>v</sub> )                                                                            |                    |                        |
| Coil :              | Class A continuous duty, #22 AWG x 18 leads                                                                                          |                    |                        |
| Voltage range :     | -15% to +10% of nominal voltage                                                                                                      |                    |                        |
| Protection :        | Consult factory                                                                                                                      |                    |                        |
| Power :             | ~Inrush 7.6 VA      Holding : 4.8 VA<br>= 1.8 to 12.7 W                                                                              |                    |                        |
| Response times :    | 24V=5.4W                                                                                                                             | Energize : 8 ms    | De-energize : 7 ms     |
|                     | 120/60                                                                                                                               | Energize : 7-13 ms | De-energize : 12-20 ms |

Options : • BSPP threads • Sandwich flow controls: FC92B-CA

Spare parts : • Pilot valve: DM-Dxxx-xxx • Valve blanking plate: M-92002 • Pressure seal, valve to base 16543  
• Inlet/Exhaust isolator disc: N-92018.

## DIMENSIONS

Dimensions shown are metric (mm)



| Function        | Port size          | Flow [Max]               | Manifold mounting  | Series |
|-----------------|--------------------|--------------------------|--------------------|--------|
| <b>5/2, 5/3</b> | <b>1/4" - 3/8"</b> | <b>1.2 C<sub>v</sub></b> | Sub-base "plug-in" |        |

## OPERATIONAL BENEFITS

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

## HOW TO ORDER

### SINGLE PRESSURE MODELS

| Port size              | Pilot air | 5/2<br>Single operator  | 5/2<br>Double operator  | 5/3<br>Closed center    | 5/3<br>Open center      | 5/3<br>Pressure center  |
|------------------------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                        |           |                         |                         |                         |                         |                         |
| <b>Valve less base</b> |           | 92B-AAA-000-DM-DxxP-xxx | 92B-BAA-000-DM-DxxP-xxx | 92B-EAA-000-DM-DxxP-xxx | 92B-FAA-000-DM-DxxP-xxx | 92B-GAA-000-DM-DxxP-xxx |
| <b>1/4" NPTF</b>       | Internal  | 92B-AAA-BJA-DM-DxxP-xxx | 92B-BAA-BJA-DM-DxxP-xxx | 92B-EAA-BJA-DM-DxxP-xxx | 92B-FAA-BJA-DM-DxxP-xxx | 92B-GAA-BJA-DM-DxxP-xxx |
| <b>3/8" NPTF</b>       |           | 92B-AAA-CJA-DM-DxxP-xxx | 92B-BAA-CJA-DM-DxxP-xxx | 92B-EAA-CJA-DM-DxxP-xxx | 92B-FAA-CJA-DM-DxxP-xxx | 92B-GAA-CJA-DM-DxxP-xxx |

### DUAL PRESSURE MODELS (REQUIRE SANDWICH REGULATOR – SEE "REGULATORS" SECTION)

| Port size              | Pilot air | 5/2<br>Single operator  | 5/2<br>Double operator  |
|------------------------|-----------|-------------------------|-------------------------|
|                        |           |                         |                         |
| <b>Valve less base</b> |           | 92B-CAA-000-DM-DxxP-xxx | 92B-DAA-000-DM-DxxP-xxx |
| <b>1/4" NPTF</b>       | Internal  | 92B-CAA-BJA-DM-DxxP-xxx | 92B-DAA-BJA-DM-DxxP-xxx |
| <b>3/8" NPTF</b>       |           | 92B-CAA-CJA-DM-DxxP-xxx | 92B-DAA-CJA-DM-DxxP-xxx |

### SOLENOID OPERATOR ➤

DM-D **XX** P-**xxx**\*

Above models are shown with side ports and no lights.

| XX Voltage                          | X Manual operator             | XX Electrical connection               |
|-------------------------------------|-------------------------------|----------------------------------------|
| <b>JA</b> 110 / 50, 120 / 60 (2.9W) | <b>1</b> Non-locking recessed | <b>DM</b> Plug-in                      |
| <b>JB</b> 220 / 50, 240 / 60 (2.9W) | <b>2</b> Locking recessed     | <b>DN</b> Plug-in with diode           |
| <b>JC</b> 24 / 60 (2.9W)            |                               | <b>DP</b> Plug-in with M.O.V.          |
| <b>FB</b> 24 VDC (1.8W)             |                               | <b>DG</b> Plug-in with ground          |
| <b>DA</b> 24 VDC (5.4W)             |                               | <b>DJ</b> Plug-in with M.O.V. & ground |
| <b>DF</b> 24 VDC (12.7W)            |                               | <b>DH</b> Plug-in with diode & ground  |

\* Other options available, see page 309.

Note: Ground required for 30 Volts or higher.

End plate kit required (port size 3/8"): M-92004-01-01 (internal pilot)

M-92004-02-01 (external pilot)

Other options available for the 92 series valves, see page 156.



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48P

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400

92

93

ISO 01

ISO 02

ISO 1

ISO 2

ISO 3

## TECHNICAL DATA

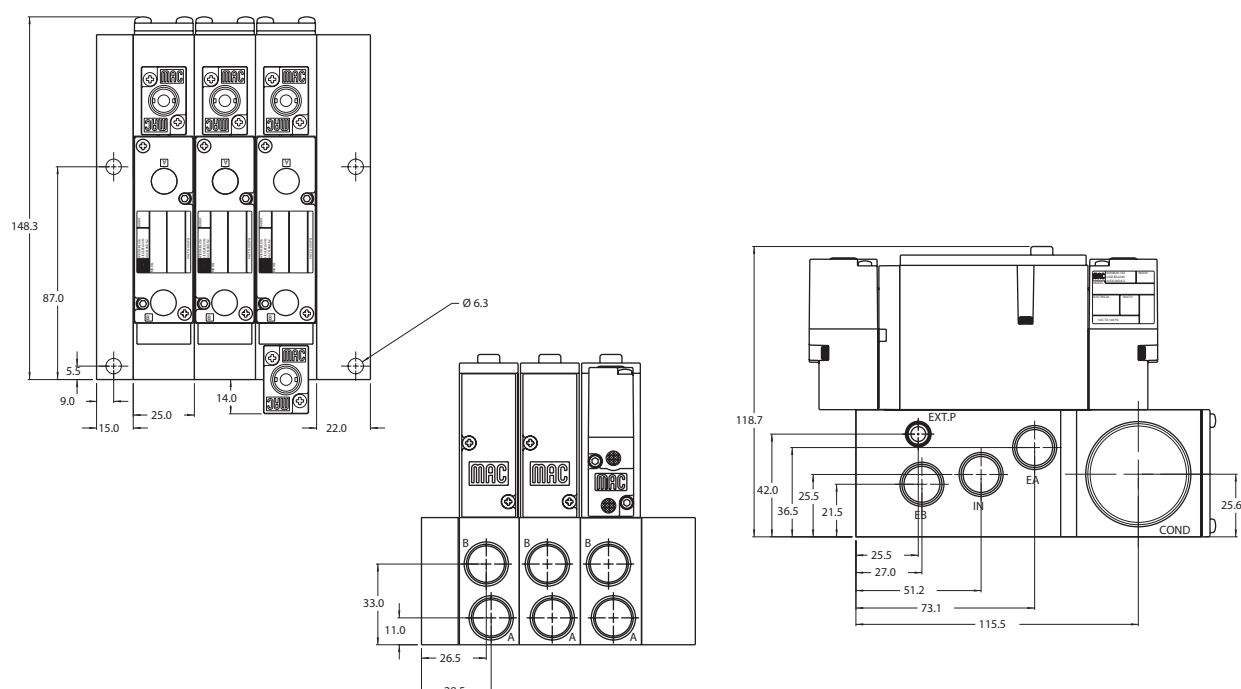
|                     |                                                                                                                                      |                    |                        |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------|
| Fluid :             | Compressed air, vacuum, inert gases                                                                                                  |                    |                        |
| Pressure range :    | Internal pilot : 20 to 120 PSI      3 position : 35 to 120 PSI<br>External pilot : vacuum to 120 PSI      3 position : 35 to 120 PSI |                    |                        |
| Lubrication :       | Not required, if used select a medium aniline point lubricant (between 180°F and 210°F)                                              |                    |                        |
| Filtration :        | 40 µ                                                                                                                                 |                    |                        |
| Temperature range : | 0°F to 120°F (-18°C to +50°C)                                                                                                        |                    |                        |
| Flow :              | 1/4": (1.1 C <sub>v</sub> ) – 3/8": (1.2 C <sub>v</sub> )                                                                            |                    |                        |
| Coil :              | Class A continuous duty, #22 AWG x 12 base leads                                                                                     |                    |                        |
| Voltage range :     | -15% to +10% of nominal voltage                                                                                                      |                    |                        |
| Protection :        | Consult factory                                                                                                                      |                    |                        |
| Power :             | ~Inrush 7.6 VA      Holding : 4.8 VA<br>= 1.8 to 12.7 W                                                                              |                    |                        |
| Response times :    | 24V=5.4W                                                                                                                             | Energize : 8 ms    | De-energize : 7 ms     |
|                     | 120/60                                                                                                                               | Energize : 7-13 ms | De-energize : 12-20 ms |

Options : • BSPP threads • Sandwich flow controls: FC92B-AA (sgl. operator), FC92B-BA (dbl. operator)

Spare parts : • Pilot valve: DM-DxxP-xxx • Valve blanking plate: M-92002 • Pressure seal, valve to base: 16543  
• Mounting screws valve to base (x2): 35050 • Inlet/Exhaust isolator disc: N-92018.

## DIMENSIONS

Dimensions shown are metric (mm)



|                                                                                                                                                                                                                                                                                                                                                                                          |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>OPTIONS FOR NON PLUG-IN VALVES</b>                                                                                                                                                                                                                                                                                                                                                    | <b>33</b>  |
| <b>Valve function</b>                                                                                                                                                                                                                                                                                                                                                                    | <b>34</b>  |
| 92B-HXX-XXX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>36</b>  |
| <ul style="list-style-type: none"> <li><b>H</b> for 3 position dual pressure, pressure center*</li> <li><b>J</b> for 3 position dual pressure, closed center*</li> <li><b>K</b> for 3 position dual pressure, open center*</li> <li><b>L</b> for single operator, single pressure with memory spring</li> <li><b>N</b> for single operator, dual pressure with memory spring*</li> </ul> | <b>32</b>  |
| <b>Pilot exhaust</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>37</b>  |
| 92B-XXB-XXX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>38</b>  |
| <ul style="list-style-type: none"> <li><b>B</b> standard pilot exhaust</li> <li><b>D</b> pilot exhaust to main valve exhaust**</li> </ul>                                                                                                                                                                                                                                                | <b>52</b>  |
| <b>Port configuration :</b>                                                                                                                                                                                                                                                                                                                                                              | <b>67</b>  |
| <b>Individual sub-base</b>                                                                                                                                                                                                                                                                                                                                                               | <b>69</b>  |
| 92B-XXX-XXA-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>44</b>  |
| <ul style="list-style-type: none"> <li><b>A</b> side ports</li> <li><b>B</b> bottom ports (1/8" only)</li> <li><b>C</b> side &amp; bottom ports (1/8" only)</li> <li><b>D</b> side inlet &amp; exhaust with bottom cylinder ports (1/8")</li> </ul>                                                                                                                                      | <b>46</b>  |
| <b>Manifold sub-base</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>42</b>  |
| 92B-XXX-XJX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>47</b>  |
| <ul style="list-style-type: none"> <li><b>J</b> side ports</li> <li><b>K</b> bottom ports</li> </ul>                                                                                                                                                                                                                                                                                     | <b>48P</b> |
| <b>Pilot style :</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>48</b>  |
| 92B-XXX-XXX-DM-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>400</b> |
| <ul style="list-style-type: none"> <li><b>DM</b> pilot exhaust muffled</li> <li><b>DP</b> pilot exhaust piped (#10-32)</li> <li><b>DU</b> pilot exhaust to main exhaust</li> </ul>                                                                                                                                                                                                       | <b>92</b>  |
| <b>Base only :</b>                                                                                                                                                                                                                                                                                                                                                                       |            |
| 92B-000-XXX (i.e. 92B-000-AAG) - Individual base                                                                                                                                                                                                                                                                                                                                         |            |
| 92B-000-XXX (i.e. 92B-000-BJG) - Manifold base                                                                                                                                                                                                                                                                                                                                           |            |

\* Requires sandwich regulator.  
 \*\* Must use DU pilot. Main valve exhaust cannot be restricted.

## OPTIONS FOR PLUG-IN VALVES

### Valve function

92B-**HXX-XXX-XX-DxxP-xxx**

- H** for 3 position dual pressure, pressure center\*
- J** for 3 position dual pressure, closed center\*
- K** for 3 position dual pressure, open center\*
- L** for single operator, single pressure with memory spring
- N** for single operator, dual pressure with memory spring\*

### Pilot exhaust

92B-**XA**X-XXX-XX-DxxP-xxx

- A** standard pilot exhaust
- C** pilot exhaust to main valve exhaust\*\*

### Body electrical

92B-XX**A**-XXX-XX-DxxP-xxx

- A** no light
- B** light(s)
- F** suppression and blocking diode with light(s)
- H** M.O.V. with light(s)

### Port configuration :

#### Individual sub-base

92B-XXX-**XA**X-XX-DxxP-xxx

- A** side ports
- B** bottom ports (1/8" only)
- C** side & bottom ports (1/8" only)
- D** side inlet & exhaust with bottom cylinder ports (1/8")

#### Individual & Manifold sub-base Int. pilot

92B-XXX-XX**A**-XX-DxxP-xxx

- A** internal pilot no light
- B** internal pilot single light
- C** internal pilot double light

### Pilot style :

92B-XXX-XXX-**DM**-DxxP-xxx

- DM** pilot exhaust muffled
- DP** pilot exhaust piped (#10-32)
- DU** pilot exhaust to main exhaust

### Lead Wire Lengths : (manifold sub-base only)

92B-XXX-XXX-DM-Dxx**P**-xxx

- P** 12" leads
- 1** 18" leads
- 2** 24" leads
- 3** 36" leads
- 4** 48" leads
- 5** 72" leads

### Base only :

92B-000-XXX (i.e. 92B-000-AAA) - Individual base

(Note: bases are wired for double solenoid valves)

### Manifold sub-base

92B-XXX-**XJX**-XX-DxxP-xxx

- J** side ports
- K** bottom ports

### Individual sub-base Ext. pilot

92B-XXX-XX**D**-XX-DxxP-xxx

- D** external pilot no light
- E** external pilot single light
- F** external pilot double light

92B-000-XXX (i.e. 92B-000-BJA) - Manifold base

\* Requires sandwich regulator.

\*\* Must use DU pilot. Main valve exhaust cannot be restricted.

|                                                                                                                                                                                                                                                                                                                                                                                          |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>OPTIONS FOR NON PLUG-IN VALVES</b>                                                                                                                                                                                                                                                                                                                                                    | <b>33</b>  |
| <b>Valve function</b>                                                                                                                                                                                                                                                                                                                                                                    | <b>34</b>  |
| 92B-HXX-XXX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>36</b>  |
| <ul style="list-style-type: none"> <li><b>H</b> for 3 position dual pressure, pressure center*</li> <li><b>J</b> for 3 position dual pressure, closed center*</li> <li><b>K</b> for 3 position dual pressure, open center*</li> <li><b>L</b> for single operator, single pressure with memory spring</li> <li><b>N</b> for single operator, dual pressure with memory spring*</li> </ul> | <b>32</b>  |
| <b>Pilot exhaust</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>37</b>  |
| 92B-XXB-XXX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>38</b>  |
| <ul style="list-style-type: none"> <li><b>B</b> standard pilot exhaust</li> <li><b>D</b> pilot exhaust to main valve exhaust**</li> </ul>                                                                                                                                                                                                                                                | <b>52</b>  |
| <b>Port configuration :</b>                                                                                                                                                                                                                                                                                                                                                              | <b>67</b>  |
| <b>Individual sub-base</b>                                                                                                                                                                                                                                                                                                                                                               | <b>69</b>  |
| 92B-XXX-XXA-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>44</b>  |
| <ul style="list-style-type: none"> <li><b>A</b> side ports</li> <li><b>B</b> bottom ports (1/8" only)</li> <li><b>C</b> side &amp; bottom ports (1/8" only)</li> <li><b>D</b> side inlet &amp; exhaust with bottom cylinder ports (1/8")</li> </ul>                                                                                                                                      | <b>46</b>  |
| <b>Manifold sub-base</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>42</b>  |
| 92B-XXX-XJX-XX-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>47</b>  |
| <ul style="list-style-type: none"> <li><b>J</b> side ports</li> <li><b>K</b> bottom ports</li> </ul>                                                                                                                                                                                                                                                                                     | <b>48P</b> |
| <b>Pilot style :</b>                                                                                                                                                                                                                                                                                                                                                                     | <b>48</b>  |
| 92B-XXX-XXX-DM-Dxxx-xxx                                                                                                                                                                                                                                                                                                                                                                  | <b>400</b> |
| <ul style="list-style-type: none"> <li><b>DM</b> pilot exhaust muffled</li> <li><b>DP</b> pilot exhaust piped (#10-32)</li> <li><b>DU</b> pilot exhaust to main exhaust</li> </ul>                                                                                                                                                                                                       | <b>92</b>  |
| <b>Base only :</b>                                                                                                                                                                                                                                                                                                                                                                       |            |
| 92B-000-XXX (i.e. 92B-000-AAG) - Individual base                                                                                                                                                                                                                                                                                                                                         |            |
| 92B-000-XXX (i.e. 92B-000-BJG) - Manifold base                                                                                                                                                                                                                                                                                                                                           |            |

\* Requires sandwich regulator.  
 \*\* Must use DU pilot. Main valve exhaust cannot be restricted.

## OPTIONS FOR PLUG-IN VALVES

### Valve function

92B-**HXX-XXX-XX-DxxP-xxx**

- H** for 3 position dual pressure, pressure center\*
- J** for 3 position dual pressure, closed center\*
- K** for 3 position dual pressure, open center\*
- L** for single operator, single pressure with memory spring
- N** for single operator, dual pressure with memory spring\*

### Pilot exhaust

92B-**XA**X-XXX-XX-DxxP-xxx

- A** standard pilot exhaust
- C** pilot exhaust to main valve exhaust\*\*

### Body electrical

92B-XX**A**-XXX-XX-DxxP-xxx

- A** no light
- B** light(s)
- F** suppression and blocking diode with light(s)
- H** M.O.V. with light(s)

### Port configuration :

#### Individual sub-base

92B-XXX-**XA**X-XX-DxxP-xxx

- A** side ports
- B** bottom ports (1/8" only)
- C** side & bottom ports (1/8" only)
- D** side inlet & exhaust with bottom cylinder ports (1/8")

#### Individual & Manifold sub-base Int. pilot

92B-XXX-XX**A**-XX-DxxP-xxx

- A** internal pilot no light
- B** internal pilot single light
- C** internal pilot double light

### Pilot style :

92B-XXX-XXX-**DM**-DxxP-xxx

- DM** pilot exhaust muffled
- DP** pilot exhaust piped (#10-32)
- DU** pilot exhaust to main exhaust

### Lead Wire Lengths : (manifold sub-base only)

92B-XXX-XXX-DM-Dxx**P**-xxx

- P** 12" leads
- 1** 18" leads
- 2** 24" leads
- 3** 36" leads
- 4** 48" leads
- 5** 72" leads

### Base only :

92B-000-XXX (i.e. 92B-000-AAA) - Individual base

(Note: bases are wired for double solenoid valves)

### Manifold sub-base

92B-XXX-**XJX**-XX-DxxP-xxx

- J** side ports
- K** bottom ports

### Individual sub-base Ext. pilot

92B-XXX-XX**D**-XX-DxxP-xxx

- D** external pilot no light
- E** external pilot single light
- F** external pilot double light

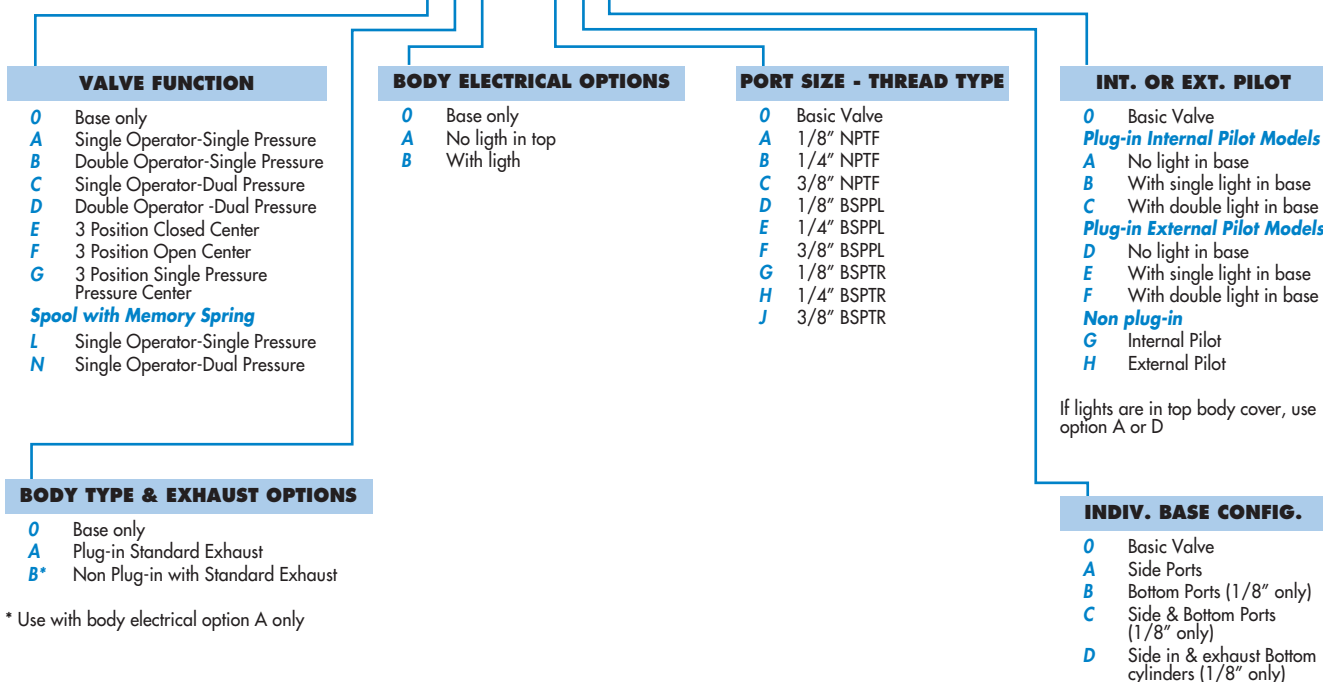
92B-000-XXX (i.e. 92B-000-BJA) - Manifold base

\* Requires sandwich regulator.

\*\* Must use DU pilot. Main valve exhaust cannot be restricted.

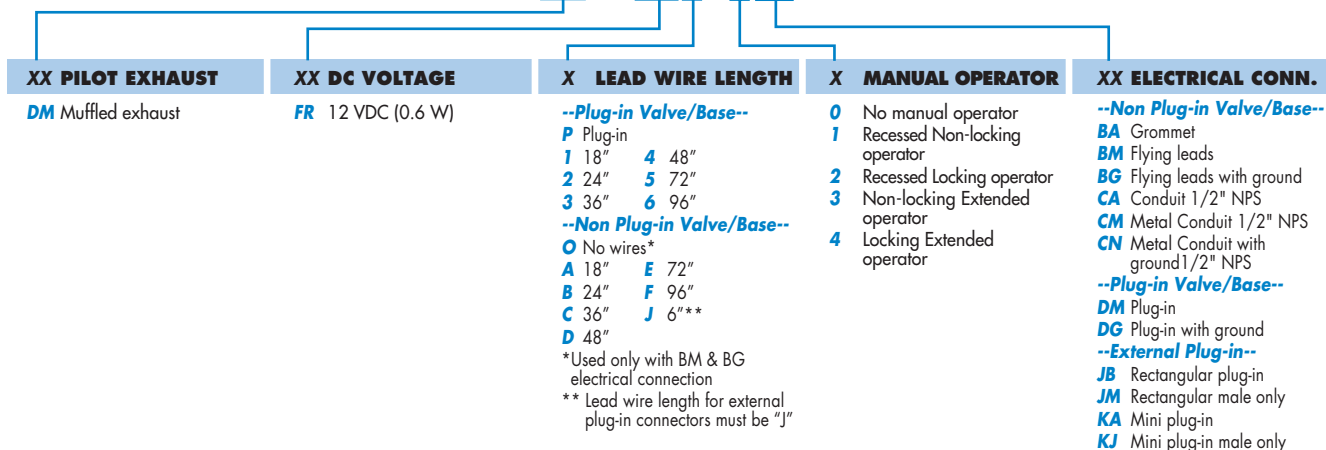
HOW TO ORDER

92B - XXX - XXX - (XX - DXXX - XXX) SEE BELOW



PILOT VALVE OPTIONS

XX - DXXX - XXX



HOW TO ORDER 92 SERIES FLOW CONTROL MODULE\*

|           |                                               |
|-----------|-----------------------------------------------|
| FC 92C-AA | Plug-in flow control assembly single solenoid |
| FC 92C-BA | Plug-in flow control assembly double solenoid |
| FC 92C-CA | Non plug-in flow control assembly             |

\*If flow control module is to be installed between valve and base or valve and manifold at the factory, add -9 after the flow control model number, i.e., FC92C-AA-9. The flow control model number should follow the valve model number on which it is to be installed.

NOTE: If a flow control assembly is used with the dual pressure regulator option, only the flow control on the "B" end is functional. (Controls both cylinder ports.)  
 NOTE: Consult the general catalog for regulator and circuit bar ordering information.



---

**Codification table for voltages / Manual operator / Electrical connection**

---

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

**OPTIONS AVAILABLE FOR**

- Pilot operated valves 52, 67, 92, 93, 400, ISO1, ISO2, ISO3 Series

---

| 1. VOLTAGE         |                               | 4. ELECTRICAL CONNECTION                                                                            |                                                   |
|--------------------|-------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------|
| D-XX X-X XX        | VOLTAGE                       | D-XX X-X XX                                                                                         | ELECTRICAL CONNECTION                             |
| DA                 | 24 VDC (5.4W)                 | BA*                                                                                                 | Flying leads (grommet)                            |
| DB                 | 12 VDC (5.4W)                 | BK*                                                                                                 | BA with protection diode                          |
| DC                 | 12 VDC (7.5W)                 | BL*                                                                                                 | BA with protection varistor                       |
| DD                 | 24 VDC (7.3W)                 | BM**                                                                                                | Flying leads (solenoid plug-in)                   |
| DE                 | 12 VDC (12.7W)                | BN**                                                                                                | BM with protection diode                          |
| DF                 | 24 VDC (12.7W)                | BP**                                                                                                | BM with protection varistor                       |
| DK                 | 110 VDC (4.7W)                | BG**                                                                                                | BM with ground                                    |
| DJ                 | 28 VDC (5.2W)                 | BH**                                                                                                | BM with protection diode & ground                 |
| DL                 | 64 VDC (6.0W)                 | BJ**                                                                                                | BM with protection varistor & ground              |
| DM                 | 36 VDC (5.3W)                 | CA*                                                                                                 | 1/2" NPS conduit with flying leads                |
| DN                 | 6 VDC (6.0W)                  | CM*                                                                                                 | 1/2" NPS metal conduit with flying leads          |
| DR                 | 90 VDC (6.6W)                 | CN*                                                                                                 | 1/2" NPS metal conduit with flying leads & ground |
| DS                 | 110 VDC (7.3W)                | JB                                                                                                  | Rectangular connector                             |
| DT                 | 75 VDC (5.6W)                 | JD                                                                                                  | JB with light                                     |
| DP                 | 48 VDC (5.8W)                 | JM                                                                                                  | Rectangular connector (male only)                 |
| FA                 | 12 VDC (1.8W)                 | KA                                                                                                  | Mini square connector                             |
| FB                 | 24 VDC (1.8W)                 | KB                                                                                                  | KA with protection diode                          |
| FE                 | 12 VDC (2.4W)                 | KC                                                                                                  | KA with protection varistor                       |
| FF                 | 24 VDC (2.4W)                 | KD                                                                                                  | KA with light                                     |
| JA                 | 120/60, 110/50 (2.9W)         | KE                                                                                                  | KA with light and protection diode                |
| JB                 | 240/60, 220/50 (2.9W)         | KF                                                                                                  | KA with light and protection varistor             |
| JC                 | 24/60, 24/50 (3.7W)           | KG                                                                                                  | KA with light & diode                             |
| JD                 | 100/60, 100/50, 110/60 (3.9W) | KJ                                                                                                  | Mini square connector (male only)                 |
| JE                 | 220/60 (3.4W)                 | KK                                                                                                  | KJ with protection diode (male only)              |
| JF                 | 240/50 (2.8W)                 | KL                                                                                                  | KJ with protection varistor (male only)           |
| JG                 | 200/60, 200/50 (3.9W)         | TA                                                                                                  | Dual tabs with receptacles                        |
| 2. WIRE LENGTH     |                               | TB                                                                                                  | TA with protection diode                          |
| D-XX X-X XX        | WIRE LENGTH                   | TD                                                                                                  | TA with light                                     |
| O                  | No wires                      | TE                                                                                                  | TA with light and protection diode                |
| A                  | 18"                           | TJ                                                                                                  | Dual tabs (male only)                             |
| B                  | 24"                           | TK                                                                                                  | TJ with protection diode                          |
| C                  | 36"                           | TM                                                                                                  | TJ with light                                     |
| D                  | 48"                           | TN                                                                                                  | TJ with light and protection diode                |
| E                  | 72"                           | * From Lead wire length options choose A through F                                                  |                                                   |
| F                  | 96"                           | ** From Lead wire length options choose 0 through F                                                 |                                                   |
| 3. MANUAL OPERATOR |                               | Note: When coil is above 30 volts, a ground wire is required. Applies to options with flying leads. |                                                   |
| D-XX X-X XX        | MANUAL OPERATOR               |                                                                                                     |                                                   |
| 0                  | No operator                   |                                                                                                     |                                                   |
| 1                  | Non-locking recessed          |                                                                                                     |                                                   |
| 2                  | Locking recessed              |                                                                                                     |                                                   |
| 3                  | Non-locking extended          |                                                                                                     |                                                   |
| 4                  | Locking extended              |                                                                                                     |                                                   |

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Ярославль (4852)69-52-93

Россия +7(495)268-04-70

Казахстан +7(7172)727-132

Киргизия +996(312)96-26-47