# Directional Control Valves

<table>
<thead>
<tr>
<th>Port Size</th>
<th>Flow Rate/ Factor</th>
<th>Function</th>
<th>Series</th>
<th>Actuators</th>
<th>Page Number</th>
</tr>
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<td>10-32 &amp; 1/8 NPT Modular</td>
<td>C(v = 0.05) to C(v = 0.23)</td>
<td>2 Way 3 Way 4 Way, 2 Position</td>
<td>Modular Manifold</td>
<td>Solenoid</td>
<td>11.3 - 11.4</td>
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<td>1/8 NPT &amp; 1/4 NPT</td>
<td>C(v = 0.05) to C(v = 0.23)</td>
<td>2 Way 3 Way</td>
<td>Hex Body</td>
<td>Solenoid</td>
<td>11.5-11.6</td>
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<td>C(v = 0.27)</td>
<td>2 Way 3 Way 4 Way, 2 Position</td>
<td>18 Manual Mechanical Pilot Solenoid</td>
<td>11.7-11.8</td>
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<td>1/4 NPT Stacking</td>
<td>C(v = 1.0)</td>
<td>3 Way 4 Way, 2 Position</td>
<td>M14 Mechanical Pilot Solenoid</td>
<td>11.13</td>
<td></td>
</tr>
<tr>
<td>3/8 NPT &amp; 1/2 NPT Manifold</td>
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<td>3 Way 4 Way, 2 Position 4 Way, 3 Position</td>
<td>12A Mechanical Pilot Solenoid</td>
<td>11.23-11.28</td>
<td></td>
</tr>
<tr>
<td>3/8 NPT</td>
<td>C(v = 2.4) to C(v = 4.1)</td>
<td>3 Way 4 Way, 2 Position 4 Way, 3 Position</td>
<td>38 Mechanical Pilot Solenoid</td>
<td>11.23-11.28</td>
<td></td>
</tr>
<tr>
<td>1/2 NPT</td>
<td>C(v = 2.4) to C(v = 4.1)</td>
<td>3 Way 4 Way, 2 Position 4 Way, 3 Position</td>
<td>12 Mechanical Pilot Solenoid</td>
<td>11.23-11.28</td>
<td></td>
</tr>
<tr>
<td>1/2 NPT High Flow</td>
<td>C(v = 6.2)</td>
<td>3 Way 4 Way, 2 Position</td>
<td>12B Mechanical Pilot Solenoid</td>
<td>11.23-11.28</td>
<td></td>
</tr>
</tbody>
</table>

Note: Operating Temperature references for 18 Series and 14 Series valves described on pages 11.8 and 11.14.

Standard catalog models are suitable for operation in intermittent low temperatures in a range of 0° to +32 °F.

A custom aluminum spool may be substituted when long-term application temperatures are expected to be -40° to +32°F. These should be limited to manual or mechanical actuation, not spring return. Consider that actuation force may exceed catalog specs and that spring return models may not be reliable at these low temperatures. Please consult factory.

For long-term, continuous operation in a range of +150°F to +180°F, the Viton seal option can provide the benefits of reliable leak-free operation and extended durability. For applications exceeding +180°F, please consult factory.
Directional Control Valves

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14 | 11.13
M14 | 11.13
34 | 11.13
12A | 11.23
38 | 11.23
12 | 11.23
12B | 11.23
# Directional Control Valves

## Modular Manifold

**Miniature 53 STYLE Solenoid Valves**

2, 3 or 4 Way - Modular Manifolding
2, 3 or 4 Way - Single Mounting

Time Proven • Space Saving • Reliable 2, 3 and 4 Way Solenoid Valves with 10-32 or 1/8 NPT ports are available in singular or modular manifold versions. Any combination of function and ports can be combined in the same manifold stack to save time, space and plumbing. With pressure manifold plugging, two or more pressure ranges and/or medias can be controlled in the same stack.

### For Each Valve Specify:

<table>
<thead>
<tr>
<th>Basic Model Number</th>
<th>Letter for Housing</th>
<th>Inlet Port</th>
<th>Cylinder Port</th>
<th>Basic Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE 103-M</td>
<td>-C</td>
<td>1/8 NPT</td>
<td>1/8 NPT</td>
<td>112-S</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>10-32</td>
<td>10-32</td>
<td>104-S-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8 NPT</td>
<td>1/8 NPT</td>
<td>113-S</td>
</tr>
</tbody>
</table>

**Example:** 3 Way modular mounting with manifold inlet, 1/8 NPT inlet, 10-32 Cylinder Port, Conduit Housing, 3/64 Seat, 120 Volts/60 Hz. Model Number = 103-M-C-1, 120/60

### Operating Pressures

Applies to all 4 Way 104 and 114 series valves. See **Orifice Information** below for pressure ranges of 2 & 3 Way valves.

**STANDARD SPRING**

- 40 psi Minimum
- 150 psi Maximum with #1, 3/64 orifice. See **Orifice Information** below for Maximum with other orifices.

**OPTIONAL LOW PRESSURE SPRING**

- 20 psi:
  - 20 psi Minimum
  - 25 psi Maximum
- 25 psi:
  - 25 psi Minimum
  - 60 psi Maximum

### Available Orifices and Equivalent Maximum Pressure

Ratings for AC Voltages (DC Ratings Slightly Lower)

<table>
<thead>
<tr>
<th>Orifice Number</th>
<th>Cv Factor</th>
<th>2 Way N.C.</th>
<th>3 Way N.C.</th>
<th>4 Way N.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number 0</td>
<td>1/32</td>
<td>.022</td>
<td>500 psi</td>
<td>200 psi</td>
</tr>
<tr>
<td>Number 1</td>
<td>3/64</td>
<td>.055</td>
<td>400</td>
<td>150</td>
</tr>
<tr>
<td>Number 2</td>
<td>1/16</td>
<td>.075</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Number 3</td>
<td>3/32</td>
<td>.156</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>Number 4</td>
<td>1/8</td>
<td>.230</td>
<td>75</td>
<td>30</td>
</tr>
</tbody>
</table>

CFM - Flow @

<table>
<thead>
<tr>
<th>100 psi</th>
<th>50 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>0.9</td>
</tr>
<tr>
<td>3.5</td>
<td>2.0</td>
</tr>
<tr>
<td>5.8</td>
<td>3.4</td>
</tr>
<tr>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>8.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

### OPTION INFORMATION

- Viton Seals for media compatibility specify Option -V
- Coils & Housing, See page 11.29.
- Low Pressure Spring - 4 Way Only - See Operating Pressures.
- Pro-Coat™ (Electroless Nickel Plate) Option -N, See page 1.10.
- Special Bank Assembly (Plugs, Fittings, Wire Terminals) See Pg iii.

### ACCESSORIES

- Mounting Brackets Part # 101.
- SM-10 Muffler, See page 14.1.

### ORIFICE INFORMATION

<table>
<thead>
<tr>
<th>Orifice Number</th>
<th>Cv Factor</th>
<th>2 Way N.C.</th>
<th>3 Way N.C.</th>
<th>4 Way N.C.</th>
</tr>
</thead>
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<tr>
<td>Number 0</td>
<td>1/32</td>
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<td>Number 1</td>
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<td>.055</td>
<td>400</td>
<td>150</td>
</tr>
<tr>
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<td>1/16</td>
<td>.075</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Number 3</td>
<td>3/32</td>
<td>.156</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>Number 4</td>
<td>1/8</td>
<td>.230</td>
<td>75</td>
<td>30</td>
</tr>
</tbody>
</table>

CFM - Flow @

<table>
<thead>
<tr>
<th>100 psi</th>
<th>50 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>0.9</td>
</tr>
<tr>
<td>3.5</td>
<td>2.0</td>
</tr>
<tr>
<td>5.8</td>
<td>3.4</td>
</tr>
<tr>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>8.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Specifications subject to change without notice or incurring obligation 12-22-06

Supply pressure can be connected to either or both ends of the stack. Due to the fact that the supply pressure port on all "M" valve bodies is tapped on both sides, the pressure manifold can be plugged at any point within the stack. This allows you to supply the stack with two different pressures or media, one from each end.

For more than two inputs a port block can be provided in midstack. Spacers can be included for applications requiring the larger EXPLOSION PROOF operator. Contact Fabco-Air with your specific requirements.

MODEL 104-S-10 (10-32 Inlet Port)
MODEL 104-S-18 (1/8 NPT Inlet Port)

MODEL 112-S (2-Way), 113-S (3-Way)

MODEL 102-SM (2-Way), 103-SM (3-Way)
### Hex Body 53 STYLE Solenoid Valves

#### 2 WAY NORMALLY OPEN

<table>
<thead>
<tr>
<th>BODY STYLE</th>
<th>SIDE PORT</th>
<th>IN</th>
<th>OUT</th>
<th>Basic Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY STYLE 1</td>
<td>De-Energized</td>
<td>10-32</td>
<td>1/8</td>
<td>82-***-NO1</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>1/8</td>
<td>1/8</td>
<td>82-***-NO2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10-32</td>
<td>1/4</td>
<td>42-***-NO1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1/8</td>
<td>1/4</td>
<td>42-***-NO2</td>
</tr>
</tbody>
</table>

#### 2 WAY NORMALLY CLOSED

<table>
<thead>
<tr>
<th>BODY STYLE</th>
<th>SIDE PORT</th>
<th>IN</th>
<th>OUT</th>
<th>Basic Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY STYLE 1</td>
<td>De-Energized</td>
<td>1/8</td>
<td>1/8</td>
<td>82-***</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>1/4</td>
<td>1/4</td>
<td>42-***</td>
</tr>
</tbody>
</table>

#### How to Order

- **Basic Model Number**
- **EXAMPLE**
  - X883-C-1, 120/60
- **Options**
  - 1/8 NPT Adapter
  - Conduit Housing, 3/64 Seat, 120 Volts/60 HZ. Model Number = X883-C-1, 120/60

#### Specifications

- **Body**
  - Hex aluminum, black anodized - 3 Different porting styles.
- **Media**
  - Air, water & other fluids compatible with standard Buna-N seals and aluminum.
- **Power**
  - See page 11.29
- **Operating Pressure**
  - See chart with orifice information
- **Internal Parts**
  - Stainless Steel
- **Internal Temperature**
  - 0°F (–18°C) to +150°F (65°C) media.
- **Operating Temperature**
  - 0°F (–18°C) to +104°F (40°C) ambient.
- **Voltages**
  - See page 11.29
- **Pro-Coat™**
  - Electroless Nickel Plate
- **Viton Seals**
  - For media compatibility
- **Explosion Proof**
  - See Pg. 11.30
- **Solenoid Exhaust Muffler**
  - See Pg. 11.5
- **Spade Electrical Connections**
  - See Pg. 11.6
- **DIN, Conduit, Grommet**
  - See Pg. 11.29
- **X-482-***
  - See Pg. 11.10
- **SM-10**
  - See Page 14.1
- **Connectors for Mini-DIN “F”**
  - See Pg. 11.30
- **All 3 Way EX Orifices are 1/16 Volts & Hertz**
- **See Model Charts**
- **See Chart, Option Information**
- **See Chart, Orifice Information**
- **See Solenoid Information Page 11.29**
- **See Solenoid Information Page 11.29**

---

### Hex Body 2 & 3 Way Valves

- **De-Energized**
- **Energized**
- **Hex Body**
- **Body Style 3 Male Bottom Port**
- **Body Style 2 Female Bottom Port**
- **Body Style 3 Female Bottom Port**
- **Body Style 2 Male Bottom Port**
- **Body Style 3 Male Bottom Port**

### Directional Control Valves

- Insert Letter for Housing at ★
- Number for Orifice at ✦
- All 3 Way EX Orifices are 1/16 Options
- Volts & Hertz

---

### How to Specify

- **Example**: 3 Way N.C., 1/8 NPT Male Bottom Inlet, 1/8 NPT Side Cylinder, Conduit Housing, 3/64 Seat, 120 Volts/60 HZ.
- **Model Number = X883-C-1, 120/60**
### Table: Available Orifices and Equivalent Maximum Pressure Ratings for AC Voltages (DC Ratings Slightly Lower)

<table>
<thead>
<tr>
<th>Number</th>
<th>Cv Factor</th>
<th>2 Way N.O.</th>
<th>2 Way N.C.</th>
<th>3 Way N.O.</th>
<th>3 Way N.C.</th>
<th>100 psi</th>
<th>50 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.022</td>
<td>150 psi</td>
<td>500 psi</td>
<td>150 psi</td>
<td>200 psi</td>
<td>1.3</td>
<td>0.9</td>
</tr>
<tr>
<td>1</td>
<td>0.055</td>
<td>125</td>
<td>400</td>
<td>125</td>
<td>150</td>
<td>3.5</td>
<td>2.0</td>
</tr>
<tr>
<td>2</td>
<td>0.075</td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>100</td>
<td>5.8</td>
<td>3.4</td>
</tr>
<tr>
<td>3</td>
<td>0.156</td>
<td>NA</td>
<td>100</td>
<td>NA</td>
<td>60</td>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>4</td>
<td>0.230</td>
<td>NA</td>
<td>75</td>
<td>NA</td>
<td>30</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

All 3 way (EX) exhaust orifices are 1/16.

### Diagrams:

- **Body Style 1 - Side Ports**
- **Body Style 2 - Female Bottom Port**
- **Body Style 3 - Male Bottom Port**

See Pg. 11.29 for Housing Details
1/8 NPT PORTED, MANUAL, MECHANICAL AND PILOT OPERATED AIR VALVES - “The Finest in Simplicity”

2, 3 and 4 Way - 2 Position – Operation to 150 psi Air

Suitable for Vacuum directional flow applications, but NOT for holding vacuum.
Short stroke of lightweight Delrin® spools provides fast, positive, and reliable response.

**Air Pilot**

Standard 2 Way & 3 Way spring return are normally closed. For normally open the actuators may be exchanged end for end or by specifying -20 for -2 & -30 for -3.

Minimum pilot pressure:
Standard spring . . . . . . . . . 60 psi
Light spring (Option -L) . . . . 40 psi
Double pilot . . . . . . . . . . . . . 20 psi

**Pilot Bushing**

1/8 NPT Standard, 10-32 = Option -E

1/8 NPT Housing 9/16 Hex

**Air Pilot Amplifier**

1” Delrin piston in aluminum housing meets low pressure requirements. Standard 2 Way & 3 Way spring return are normally closed. For normally open the actuators may be exchanged end for end or by specifying -20 for -2 & -30 for -3.

Minimum pilot pressure:
Standard spring . . . . . . . . . 10 psi
Light spring (Option -L) . . . . 7 psi
Against 0 psi pilot . . . . . . . . 2 psi

**Rod Actuator**

Stainless steel rod in brass bushing. Standard 2 Way & 3 Way spring return are normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -20 for -2 & -30 for -3.

Force to actuate:
Standard spring . . . . . . . . . 6.5 lb.
Light spring (Option -L) . . . . 5.0 lb.
Double Rod . . . . . . . . . . . . . 3.0 lb.

**Roller Cam**

Case hardened steel roller and shaft in hard anodized aluminum housing. Standard 2 Way & 3 Way spring return are normally closed. For normally open specify by substituting -20 for -2 & -30 for -3.

Force to actuate:
Standard spring . . . . . . . . . 6.5 lb.
Light spring (Option -L) . . . . 5.0 lb.
Double Cam . . . . . . . . . . . . . 4.0 lb.

**Valve Body Dimensions**

Standard 2 & 3 way spring return models are normally closed. Models with thread in actuators may be converted to normally open by exchanging actuators end for end. Other models require specification and factory assembly. See note 1.

11.7

Note 1: Specify Normally Open by substituting -20 for -2 & -30 for -3.

### 2 Way

- Single Pilot - Spring Return 18SP-2 18SP-3 18SP-4
- Double pilot 18DP-2 18DP-3 18DP-4

Replacement spool & seals 1800-902 1800-903 1800-904
Light spring, Option -L 10-32 pilot port, Option -E

### 3 Way

- Single Pilot - Spring Return 18SA-2 18SA-3 18SA-4
- Double pilot - 2 amplifiers 18DA-2 18DA-3 18DA-4
- Double pilot - 1 amplifier, 1 air pilot 18DAP-2 18DAP-3 18DAP-4

When both pilots are pressurized, the amplifier overrides.
Replacement spool & seals 1800-902 1800-903 1800-904

### 4 Way

- Single Rod - Spring Return 18SR-2 18SR-3 18SR-4
- Single Cam - Pilot Return 18CRP-2 18CRP-3 18CRP-4
- Single Rod - Pilot Return 18DRP-2 18DRP-3 18DRP-4

Replacement spool & seals 1800-912 1800-913 1800-914

### Replacement Spool & Seals

- Double Pilot 18SP-2 18SP-3 18SP-4
- Single Pilot (Amplifier) - Spring Return 18DA-2 18DA-3 18DA-4
- Single Cam - Spring Return 18CR-2 18CR-3 18CR-4
- Single Cam - Pilot Return 18CRP-2 18CRP-3 18CRP-4

Specifications subject to change without notice or incurring obligation
### Directional Control Valves

**FEATURES**

- Aluminum bar body
- Anodized black
- Honed & burnished bore
- Pressure balanced spool
- Delrin spool
- Buna-N seals
- Operation to 150 psi
- 4 Way - 5 port may be used as either single inlet - dual exhaust or dual inlet - single exhaust.

- Prelubed with Magnalube-G Grease
- Interchangeability of Parts
- CV = 0.27 (14.2 SCFM Free Flow to Atmosphere at 80 psi Supply)
- Operating temperature +32° to +180°F;  Atmosphere at 80 psi Supply
- Sockets for bleeder pilot
- Multiple stacking with or without common inlet. Consult factory.

**OPERATING TEMPERATURE FOOTNOTE** SEE PAGE 11.1

### Small Palm Button

Un-anodized aluminum button with stainless steel rod in brass bushing. Standard 2 Way & 3 Way spring return are normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -20 for -2 & -30 for -3. Force to actuate:

- Standard spring . . . . . . . . . 6.5 lb.
- Light spring (Option -L) . . . 5.0 lb.
- Double Button . . . . . . . . . . . . 1.2 lb.

**OPTIONS**

- Light spring – Specify Option -L
- #10-32 Pilot Port – Specify Option -E
- Viton seals – Specify Option -V
- Spools for bleeder pilot
- Multiple stacking with or without common inlet. Consult factory.

**Note**: 1. Specify Normally Open by substituting -20 for -2 & -30 for -3.

### Large Palm Button

Red anodized aluminum button with stainless steel rod in brass bushing. Standard 2 Way & 3 Way spring return are normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -20 for -2 & -30 for -3. Force to actuate:

- Standard spring . . . . . . . . . 6.5 lb.
- Light spring (Option -L) . . . 5.0 lb.
- Double Button . . . . . . . . . . . . 1.2 lb.

**Panel Mount Button**

Phenolic button with plated steel rod in brass bushing; black button standard, red button Option -R. Standard 2 Way and 3 Way assemblies are normally closed with knob in the “out” position. For normally open specify by substituting -20 for -2 and -30 for -3. Force to actuate:

- Standard spring . . . . . . . . . 6.5 lb.
- Light spring (Option -L) . . . 5.0 lb.
- Detented . . . . . . . . . . . . . . . . . . 3.0 lb.

**Hand Lever**

Hardened & plated steel shaft with unique connection to spool results in positive shifting. Standard 2 Way & 3 Way spring return are normally closed. For normally open specify by substituting -20 for -2 & -30 for -3.

- Standard spring . . . . . . . . . 4.0 lb.
- Light spring (Option -L) . . . 3.0 lb.
- Detented . . . . . . . . . . . . . . . . . . 2.0 lb.

### Most Threaded-In Operators are Interchangeable Between Ends

**Palm Button Assembly**

- No. 1800-1 Large Button
- No. 1800-2 Small Button

**Rod Actuator Assembly**

- No. 1800-3

**Spring Housing Assembly**

- No. 1800-4 Light Spring only (for Option L).
- No. 1800-5 Standard Spring only
- No. 1800-46 Light Spring & Housing Ass’y (for Option -L).
- No. 1800-56 Standard Spring & Housing Assembly.

**Pilot Bushing**

- No. 1800-10 1/8 NPT Port
- No. 1800-18 1/8 NPT Port

**Panel Mount Button Assembly**

- For Detented (with Spool) No. 1800-7-2 (2W NC)
- No. 1800-7-20 (2W NO)
- No. 1800-7-3 (3W NC)
- No. 1800-7-30 (3W NO)
- Above NOT interchangeable End for End 1800-7-4 (4 Way)
- For Spring or Pilot Return (No Spool)
- No. 1800-8 (2 or 3 Way, NO or NC, and 4 Way)

**Air Pilot Amplifier**

- 1/8 NPT Standard
- No. 18 AMP-1 1/8 NPT Port
- No. 10 AMP-1 10-32 Port Option -E

**Fabco-Air** has the expertise and willingness to design, modify and adapt these valves to your necessary and specific job requirements. Please advise us of your needs.
1/8 NPT Ported 53 STYLE Solenoid Controlled, Pilot Operated Air Valves
2, 3 & 4 Way - 2 Position – Operation to 150 psi Air

**Features**
- Black anodized aluminum bar stock body
- Honed and burnished bore
- Lightweight Delrin® spool provides fast, positive, reliable response
- Buna N seals
- Operation to 150 psi
- Coils & housing information see page 11.29
- Cv = 0.27
- 4.2 SCFM free flow to atmosphere @ 80 psi
- Prelubed with Magnalube®-G grease
- Operating temperature:
  - +32°F (0°C) to +104°F (40°C) ambient.
  - +32°F (0°C) to +150°F (65°C) media.

**Options**
- Manual Override
  - Locking ......................... -MO1
  - Non-Locking .................... -MO4
- External Pilot ................... -X
- Light Spring .................... -L
- Viton Seals for media compatibility. . . V
- Explosion Proof Operators . . . . -EP

**Operating Range**
Internal Pilot Supply (Standard)
- Standard Spring ............ 60 to 150 psi
- Light Spring, Option -L ... 40 to 150 psi
- Pilot Return (0 psi Pilot) ... 20 to 150 psi

External Pilot Supply, Option -X
- Inlet Pressure ................. 0 to 150 psi
- Standard Spring ............ 60 to 150 psi
- Light Spring, Option -L ... 40 to 150 psi
- Pilot Return (0 psi Pilot) ... 20 to 150 psi

**SINGLE SOLENOID**
To Order Specify:
Model Number from chart
Options
Volts & Hertz (See page 11.29)

**SINGLE SOLENOID - PILOT RETURN MODELS**
A pilot return can be substituted for the standard spring return. It may be used in two manners.
1. For a pulse signal, then pilot return.
2. As a constant, adjustable force, spring.
Supply pilot port with a constant regulated pressure. This will act as a very constant spring against the solenoid controlled pilot signal. The pilot return should be a minimum of 20 psi below the solenoid controlled pressure.

To Specify, Substitute P for S in the Model Number.
(Example 18CP-3-120/60)

1/8 NPT Pilot Port standard.
10-32 Pilot Port optional, Specify Option -E.

**DOUBLE SOLENOID**
To Order Specify:
Model Number from chart
Options
Volts & Hertz (See page 11.29)
Standard 53 STYLE Solenoid Operator
The solenoid operator is a 3-way NC valve which, upon receiving an electrical signal, directs a pilot pressure to shift the main valve spool. As standard, the operator is internally supplied with air pressure from the main valve inlet. Also see "External Pilot Supply" below.

53 STYLE Solenoid Operator with External Pilot Supply
Option -X
In the following listed applications, as well as many others, a proper air supply may not be available from the main valve inlet. For these applications, an external pilot supply port is available (Option -X). A proper air supply to this port then supplies the solenoid with air pressure for piloting the main valve spool.
- Dual Inlet - Single Exhaust 4 Way.
- Insufficient pressure at main valve inlet.
- Media, at main valve inlet, other than air.
- Extremely fast cycling.

53 STYLE Solenoid Operator with Manual Override
This manual override is a 3-way NC valve that when pushed, directs pilot pressure to shift the main spool. Pressure must be present at main valve inlet for this override to function.

TYPE | SUFFIX
--- | ---
LOCKING | -MO1
Push to override;
Turn to lock in;
Turn back to release.
NON-LOCKING | -MO4
Push to override.

Note 1: Optional Flow Path:
Dual Inlet - Ports #3 & #5 - Single Exhaust. Use External Pilot Supply (Option -X).

1/8 NPT Port Standard – 10-32 Port Specify Option -E
Directional Control Valves

1/8 NPT 2, 3 & 4 Way

18 Series

1/8 NPT Ported 58 STYLE Solenoid Controlled, Pilot Operated Air Valves
2, 3 & 4 Way - 2 Position – Operation to 150 psi Air

Features

• Black anodized aluminum bar stock body
• Honed and burnished bore
• Lightweight Delrin® spool provides fast, positive, reliable response
• Simplicity • Reliability
• Corrosion resistant construction
• Buna N seals • Operation to 150 psi
• Solenoid operator information see page 11.31
• Cv = 0.27 • 14.2 SCFM Free flow to atmosphere @ 80 psi
• Prelubed with Magnalube®-G grease
• Operating temperature:
  +32°F (0°C) to +122°F (50°C) ambient.
  +32°F (0°C) to +122°F (50°C) media.

Standard catalog models are suitable for operation in intermittent low temperatures in a range of 0° to +32 °F.

A custom aluminum spool may be substituted when long-term application temperatures are expected to be 0° to +32°F. These should be limited to double solenoid actuation. Consider that actuation force may exceed catalog specs and that spring return models may not be reliable at these low temperatures. Please consult factory.

Options

External Pilot ......................... -X
† External Pilot and Viton Seals .... -XV
Light Spring ......................... -L

† Viton Seals are available in the main valve only, for media compatibility, and therefore only in conjunction with External Pilot +32°F (0°C) to +122°F (50°C).

Operating Ranges, psi

<table>
<thead>
<tr>
<th></th>
<th>#1 Solenoid</th>
<th>#4 Solenoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Pilot Supply</td>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
</tr>
<tr>
<td>Inlet Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Spring Return</td>
<td>20 to 130</td>
<td>20 to 145</td>
</tr>
<tr>
<td>Spring Return</td>
<td>60 to 130</td>
<td>60 to 145</td>
</tr>
<tr>
<td>Light Spring Option -L</td>
<td>40 to 130</td>
<td>40 to 145</td>
</tr>
</tbody>
</table>

External Pilot Supply, Option -X Inlet Pressure....0 to 150....0 to 150

External Pilot Supply, Option -X Pilot Supply

<table>
<thead>
<tr>
<th></th>
<th>#1 Solenoid</th>
<th>#4 Solenoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet Pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non Spring Return</td>
<td>20 to 130</td>
<td>20 to 145</td>
</tr>
<tr>
<td>Spring Return</td>
<td>60 to 130</td>
<td>60 to 145</td>
</tr>
<tr>
<td>Light Spring Option -L</td>
<td>40 to 130</td>
<td>40 to 145</td>
</tr>
</tbody>
</table>

Specifications subject to change without notice or incurring obligation 2-14-08
**Directional Control Valves**

### 18 Series

#### 58 STYLE Solenoid Valve, Model Number Code

<table>
<thead>
<tr>
<th>Series</th>
<th>Function</th>
<th>Solenoid Watts</th>
<th>Primary Solenoid Attitude</th>
<th>Secondary Solenoid Attitude</th>
<th>Volts / Hertz</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>2 = 2 Way</td>
<td>1 = 0.9 Watts</td>
<td>1 = Upright 90° to Body</td>
<td>0 = None</td>
<td>#1 Solenoid</td>
</tr>
<tr>
<td></td>
<td>3 = 3 Way</td>
<td>4 = 3.5 Watts</td>
<td>5 = Inline with Body</td>
<td>1 = Upright 90° to Body</td>
<td>(0.9 Watts)</td>
</tr>
<tr>
<td></td>
<td>4 = 4 Way</td>
<td></td>
<td></td>
<td>2 = Upright 90° to Body</td>
<td>12 VDC</td>
</tr>
</tbody>
</table>

#### Example: 18FS-4-41100-120/60

1/8 NPT – Primary Actuator Solenoid with Micro DIN coil; Secondary Actuator, Spring Return – 4 Way Function
3.5 Watt Solenoid; Primary Solenoid Upright position with Manual Override in Position #1; Secondary Actuator is not a Solenoid; no Manual Override on Secondary Actuator – No Options – 120 Volt/60 Hertz.

#### External Pilot

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-X</td>
<td>External Pilot</td>
</tr>
<tr>
<td>-XV</td>
<td>External Pilot &amp; Viton Seals</td>
</tr>
<tr>
<td>-L</td>
<td>Light Spring</td>
</tr>
</tbody>
</table>

#### Options

Viton Seals are available in the main valve only for media compatibility and therefore only in conjunction with External Pilot (+32° to 180°F).

---

### 11.12
**1/4 & 3/8 NPT PORTED, MANUAL, MECHANICAL AND PILOT OPERATED AIR VALVES**

2, 3 and 4 Way - 2 Position – Operation to 150 psi Air

Suitable for Vacuum directional flow applications, but NOT for holding vacuum.

The short stroke of the lightweight Delrin® spool provides fast, positive, and reliable response.

### Air Pilot
Brass bushing with 1/8 NPT port. Standard 3 Way spring return is normally closed. For normally open the actuators may be exchanged end for end or by specifying -30 for -3.

Minimum pilot pressure:
- Standard spring: 50 psi
- Light spring (Option -L): 40 psi
- Double pilot: 20 psi

Note: See Stacking (Pressure Manifolded) information below

### Rod Actuator
Stainless steel rod in brass bushing. Standard 3 Way spring return is normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -30 for -3.

Force to actuate:
- Standard spring: 10.5 lb.
- Light spring (Option -L): 9.0 lb.
- Double rod: 1.2 lb.

Note: See Stacking (Pressure Manifolded) information below

### Roller Cam
Case hardened steel roller and shaft in hard anodized aluminum housing. Standard 3 Way spring return is normally closed. For normally open specify by substituting -30 for -3.

Force to actuate:
- Standard spring: 10.5 lb.
- Light spring (Option -L): 9.0 lb.
- Cam-Pilot return: 1.2 lb.

Note: See Stacking (Pressure Manifolded) information below

### Stacking - Pressure Manifold
Selected models of the 14 Series 1/4" air valves can be stacked and pressure manifolded for space and money savings. The valve bodies are bolted together with 4 through tie bolts and the pressure is manifolded with O-Ring seals between the valves. Inlet pressure can be connected to either or both ends of the stack. Due to the fact that the pressure port, on all valve bodies, is tapped on both sides, the pressure manifold can be plugged at any point within the stack. This allows you to supply the stack with two different pressures, one from each end.

### Specifications
- **Primary**: 1.03
- **Secondary**: 1.34

---

**11.13**

Specifications subject to change without notice or incurring obligation
**FEATURES**

- Aluminum bar body
- Anodized black
- Honed & burnished bore
- Pressure balanced spool
- Delrin spool
- Buna-N seals
- Operation to 150 psi
- 4 Way - 5 port may be used as either single inlet - dual exhaust or dual inlet - single exhaust.
- • Prelubed with Magnalube-G Grease
- • Interchangeability of Parts
- • Cv = 1.0
- • 56.2 SCFM Free Flow to Atmosphere at 80 psi Supply
- • Operating Temperature +32° to +180°F; Solenoid controlled models +150°F max.

**OPERATING TEMPERATURE FOOTNOTE SEE PAGE 11.1**

**3 Way 4 Way**

**Small Palm Button**

Un-anodized aluminum button with stainless steel rod in brass bushing. Standard 3 Way spring return is normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -30 for -3.

- Force to actuate:
  - Standard spring ............. 10.5 lb.
  - Light spring (Option -L) ....... 9.0 lb.
  - Double Button ................. 1.2 lb.

**Large Palm Button**

Red anodized aluminum button with stainless steel rod in brass bushing. Standard 3 Way spring return is normally closed. For normally open the actuators may be exchanged end for end or specify by substituting -30 for -3.

- Force to actuate:
  - Standard spring ............. 10.5 lb.
  - Light spring (Option -L) ....... 9.0 lb.
  - Double Button ................. 1.2 lb.

**Panel Mount Button**

Phenolic button with plated steel rod in brass bushing: black button standard; red button Option -R. Standard 3 Way assemblies are normally closed with knob in the “out” position. For normally open specify by substituting -30 for -3.

- Force to actuate:
  - Standard spring ............. 10.5 lb.
  - Light spring (Option -L) ....... 9.0 lb.
  - Detented ...................... 3.0 lb.

**Hand Lever**

Hardened & plated steel shaft with unique connection to spool results in positive shifting. Standard 3 Way spring return is normally closed. For normally open specify by substituting -30 for -3.

- Force to actuate:
  - Standard spring ............. 10.0 lb.
  - Light spring (Option -L) ....... 6.0 lb.
  - Detented ...................... 3.0 lb.

**MOST THREADED-IN OPERATORS ARE INTERCHANGEABLE BETWEEN ENDS**

**Options**

- • Light spring – Specify Option -L
- • Viton seals – Specify Option -V
- • Spools for bleeder pilot – Consult factory.

Note 1: Specify Normally Open by substituting -30 for -3.
**Directional Control Valves**

**1/4 NPT & 3/8 NPT Ported, Manual & Pilot Operated, & Solenoid Controlled Air Valves**

### New 5 Ported, 3-Position 4-Way Operation

#### New Spools for 14 & 34 Series Air Valves

- **4-Way - 5 Ported - 3 Position - Type F**
  - Center position - Inlet blocked and Cylinders open to exhaust
  - Used to vent both ends of cylinder to allow cylinder to float with a manual or machine movement.
  - Flow controls or exhaust speed controls should not be used.

- **4-Way - 5 Ported - 3 Position - Type B**
  - Center position - All ports blocked and isolated. Use on conventional block and hold circuits.

#### Features
- Aluminum bar body
- Anodized black
- Honed and burnished bore
- Delrin spool, pressure balanced
- Buna N seals
- May be used as either single inlet-dual exhaust or dual inlet-single exhaust
- Pre-lubed with Magnalube-G® Grease

#### Operating Range
- Operating pressure: 0 to 150 psi
- Minimum pilot pressure: 50 psi
- Cv = 1.0 (56.2 SCFM free flow to atmosphere @ 80 psi supply)
- Temperature: +32° to 180°F

For long-term, continuous operation in a range of +150°F to +180°F, the Viton seal option can provide the benefits of reliable leak-free operation and extended durability.

#### Options
- Viton Seals, Specify Option - V

### 1/4 NPT & 3/8 NPT Ported, Pilot Operated Air Valves

#### 5 Ported, 3-Position 4-Way Operation

#### Features
- Aluminum bar body
- Anodized black
- Honed and burnished bore
- Delrin spool, pressure balanced
- Buna N seals
- May be used as either single inlet-dual exhaust or dual inlet-single exhaust
- Pre-lubed with Magnalube-G® Grease

#### Operating Range
- Operating pressure: 0 to 150 psi
- Minimum pilot pressure: 50 psi
- Cv = 1.0 (56.2 SCFM free flow to atmosphere @ 80 psi supply)
- Temperature: +32° to 180°F

For long-term, continuous operation in a range of +150°F to +180°F, the Viton seal option can provide the benefits of reliable leak-free operation and extended durability.

#### Options
- Viton Seals, Specify Option - V

### Model Number Guide: 3-Position, Pilot Operated

<table>
<thead>
<tr>
<th>Spool Type</th>
<th>Spring Centered Spool</th>
<th>Replacement Spool and Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Spool</td>
<td>1/4 NPT Ports</td>
<td>3/8 NPT Ports</td>
</tr>
<tr>
<td>F Spool</td>
<td>14 DPB</td>
<td>34DPB</td>
</tr>
<tr>
<td></td>
<td>1400-904B</td>
<td></td>
</tr>
</tbody>
</table>

### Valve Dimensions

- 1/8 NPT Pilot Port 2 Places
- 1.13
- 1.00
- .25
- 3.38
- .20 Clearance for #10 bolt
- .19
- 4.88
- 1.75
1/4 NPT & 3/8 NPT Ported, Hand Lever Operated Air Valves

5 Ported, 3-Position 4-Way Operation

Operating Range

- Operating pressure: 0 to 150 psi
- Cv = 1.0 (56.2 SCFM free flow to atmosphere @ 80 psi supply)
- Temperature: +32°F to 180°F

Standard catalog models are suitable for operation in intermittent low temperatures in a range of 0° to +32°F. A custom aluminum spool may be substituted when long-term application temperatures are expected to be -40°F to +32°F. These should be limited to manual actuation, not spring centered. Consider that actuation force may exceed catalog specs and that spring return models may not be reliable at these low temperatures. Please consult factory.

For long-term, continuous operation in a range of +150°F to +180°F, the Viton seal option can provide the benefits of reliable leak-free operation and extended durability.

Options

- Viton Seals, Specify Option - V

Features

- Hardened and plated steel shaft with unique connections results in positive shifting
- Aluminum bar body
- Anodized black
- Honed and burnished bore
- Delrin spool, pressure balanced
- Buna N seals
- May be used as either single inlet-dual exhaust or dual inlet-single exhaust
- Pre-lubed with Magnalube–G® Grease

Model Number Guide: 3-Position, Hand Lever Operated

<table>
<thead>
<tr>
<th>Spool Type</th>
<th>1/4 NPT Ports</th>
<th>3/8 NPT Ports</th>
<th>1/4 NPT Ports</th>
<th>3/8 NPT Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Spool</td>
<td>14HLSB</td>
<td>34HLSB</td>
<td>1400-934SB</td>
<td>14HLB</td>
</tr>
<tr>
<td>F Spool</td>
<td>14HLSF</td>
<td>34HLSF</td>
<td>1400-934SF</td>
<td>14HLF</td>
</tr>
</tbody>
</table>

Dimensions – Spring Centered Spool

Dimensions – Detented Spool

Specifications subject to change without notice or incurring obligation
Directional Control Valves

1/4 & 3/8 NPT  
4-Way, 3 Position  
14 & 34 Series

1/4 NPT & 3/8 NPT Ported, 53 Style Solenoid Controlled, Pilot Operated Air Valves

5 Ported, 3-Position 4-Way Operation

Features
- Aluminum bar body
- Anodized black
- Honed and burnished bore
- Delrin spool
- Buna N seals
- Cv = 1.0 (56.2 SCFM free flow to atmosphere @ 80 psi supply)
- Operation to 150 psi
- Operating Temperature:
  +32°F (0°C) to +104°F (40°C) ambient.
  +32°F (0°C) to +150°F (65°C) media.
- Pre-lubed with Magnalube–G® Grease
- Coils & Housing information see page 11.29.

Operating Range
- Internal pilot supply - standard
  Inlet.........................50 to 150 psi
- External pilot supply Option →X
  Inlet..........................0 to 150 psi
  Pilot Supply .................50 to 150 psi

Ordering
Choose valve model number from table below and add option suffixes as required and specify voltage/hertz.

Model Number Guide: 4-Way, 3-Position, Spring Centered Double Solenoid Valves

<table>
<thead>
<tr>
<th>Spool Type</th>
<th>Conduit Housing “C”</th>
<th>Grommet Housing “G”</th>
<th>Male Mini-DIN Housing “F”</th>
<th>Replacement Spool &amp; Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Spool</td>
<td>14-CCB</td>
<td>14-GGB</td>
<td>14-FFB</td>
<td>1400-904B</td>
</tr>
<tr>
<td></td>
<td>34-CCB</td>
<td>34-GGB</td>
<td>34-FFB</td>
<td></td>
</tr>
<tr>
<td>F Spool</td>
<td>14-CCF</td>
<td>14-GGF</td>
<td>14-FFF</td>
<td>1400-904F</td>
</tr>
<tr>
<td></td>
<td>34-CCF</td>
<td>34-GGF</td>
<td>34-FFF</td>
<td></td>
</tr>
</tbody>
</table>
53 Style Solenoid Operators

**Standard 53 Style Operator**
The solenoid operator is a 3-way NC valve which, upon receiving an electrical signal, directs pressure to shift the main valve spool. As standard, the operator is internally supplied with air pressure from the main valve inlet.

![Diagram of Standard 53 Style Operator](image)

**53 Style Operator with External Pilot Option –X**
In the following listed applications, as well as many others, a proper air supply may not be available from the main valve inlet. For these applications, an external pilot supply port is available (Option –X). A proper air supply to this port then supplies the solenoid with air pressure for piloting the main valve spool.
- Dual inlet, single exhaust
- Insufficient Pressure at main valve inlet
- Media at main valve inlet is other than air
- Extreme fast cycling

![Diagram of 53 Style Operator with External Pilot Option –X](image)

**Valve Dimensions**

![Diagram of Valve Dimensions](image)

**Conduit Housing "C"**

![Diagram of Conduit Housing "C"](image)

**Grommet Housing "G"**

![Diagram of Grommet Housing "G"](image)

**Male Mini-DIN Housing "F"**

![Diagram of Male Mini-DIN Housing "F"](image)
1/4 & 3/8 NPT Ported 53 STYLE Solenoid Controlled, Pilot Operated Air Valves
2, 3 & 4 Way - 2 Position – Operation to 150 psi Air

**Features**
- Black anodized aluminum bar stock body
- Honed and burnished bore
- Lightweight Delrin® spool provides fast, positive, reliable response
- Buna N seals  
- Operation to 150 psi
- Coils & housing information see page 11.29
- Cv = 1.0  
- 56.2 SCFM free flow to atmosphere at 80 psi
- Prelubed with Magnalube®-G grease
- Operating temperature:
  - +32°F (0°C) to +104°F (40°C) ambient.
  - +32°F (0°C) to +150°F (65°C) media.

Standard catalog models are suitable for operation in intermittent low temperatures in a range of 0° to +32 ºF.

A custom aluminum spool may be substituted when low-term application temperatures are expected to be 0° to +32°F. These should be limited to double solenoid actuation. Consider that actuation force may exceed catalog specs and that spring return models may not be reliable at these low temperatures. Please consult factory.

### Options

- Manual override
  - Locking .................. -MO1
  - Non-Locking .............. -MO4
- External pilot .......... -X
- Light spring ............ -L
- Viton seals for media compatibility . . . . -V
- Explosion proof operators ............... -EP

See page 11.30
Dual Inlet - Single Exhaust 4 Way
See page 11.20, Note 1: Optional Flow Path.

### Operating Range

**Internal Pilot Supply (Standard)**
- Standard Spring . ..... 50 to 150 psi
- Light Spring, Option -L . 40 to 150 psi
- Pilot Return (0 psi Pilot) . ... 30 to 150 psi

**External Pilot Supply, Option -X**
- Inlet Pressure ............. 0 to 150 psi
- Standard Spring . ..... 50 to 150 psi
- Light Spring, Option -L . 40 to 150 psi
- Pilot Return (0 psi Pilot) . ... 30 to 150 psi

### SINGLE SOLENOID

To Order Specify: Model Number from chart Options Volts & Hertz (See page 11.29)

<table>
<thead>
<tr>
<th>1/4 NPT PORTS</th>
<th>3/8 NPT PORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4 WAY</strong></td>
<td><strong>4 WAY</strong></td>
</tr>
<tr>
<td>Normally Closed</td>
<td>Normally Open</td>
</tr>
<tr>
<td>Conduit Housing</td>
<td>14CS-3</td>
</tr>
<tr>
<td>Grommet Housing</td>
<td>14GS-3</td>
</tr>
<tr>
<td>Male Mini-DIN Housing</td>
<td>14FS-3</td>
</tr>
<tr>
<td>Replacement Spool &amp; Seals</td>
<td>1400-913</td>
</tr>
</tbody>
</table>

### SINGLE SOLENOID - PILOT RETURN MODELS

A pilot return can be substituted for the standard spring return. It may be used in two manners.

1. For a pulse signal, then pilot return.
2. As a constant, adjustable force, spring.

Supply pilot port with a constant regulated pressure. This will act as a very constant spring against the solenoid controlled pilot signal.

The pilot return should be a minimum of 30 psi below the solenoid controlled pressure.

To Specify, Substitute P for S in the Model Number. (Ex: 14CP-3-120/60)

### DOUBLE SOLENOID

To Order Specify: Model Number from chart Options Volts & Hertz (See page 11.29)

<table>
<thead>
<tr>
<th>1/4 NPT PORTS</th>
<th>3/8 NPT PORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4 WAY</strong></td>
<td><strong>4 WAY</strong></td>
</tr>
<tr>
<td>Normally Closed</td>
<td>Normally Open</td>
</tr>
<tr>
<td>Conduit Housing</td>
<td>14CC-3</td>
</tr>
<tr>
<td>Grommet Housing</td>
<td>14GG-3</td>
</tr>
<tr>
<td>Male Mini-DIN Housing</td>
<td>14FF-3</td>
</tr>
<tr>
<td>Replacement Spool &amp; Seals</td>
<td>1400-923</td>
</tr>
</tbody>
</table>

Specifications subject to change without notice or incurring obligation
**Directional Control Valves**

1/4 & 3/8 NPT 2, 3 & 4 Way 14, M14 & 34 Series

**Specifications subject to change without notice or incurring obligation**

---

### 1/4 & 3/8 NPT 2, 3 & 4 Way

#### 14, M14 & 34 Series

- **1/4 & 3/8 NPT**
- **2, 3 & 4 Way**

---

#### 3 Way

<table>
<thead>
<tr>
<th>End</th>
<th>Operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Spring</td>
</tr>
<tr>
<td>12</td>
<td>Solenoid</td>
</tr>
</tbody>
</table>

- **2 Way Function**
  This 3 Way Valve may be used for any 2 Way, 3 Way, Selector or Diverter service.

---

#### 4 Way - 5 Port

- **Standard**: Single Inlet - Port #1 - Dual Exhaust.
- **Note 1**: Optional Flow Path: Dual Inlet - Ports #3 & #5 - Single Exhaust. Use External Pilot Supply (Option -X).

---

### Standard 53 STYLE Solenoid Operator

The solenoid operator is a 3-way NC valve which, upon receiving an electrical signal, directs a pilot pressure to shift the main valve spool. As standard, the operator is internally supplied with air pressure from the main valve inlet. Also see “External Pilot Supply” below.

---

### 53 STYLE Solenoid Operator with External Pilot Supply -X

In the following listed applications, as well as many others, a proper air supply may not be available from the main valve inlet. For these applications, an external pilot supply port is available (Option -X). A proper air supply to this port then supplies the solenoid with air pressure for piloting the main valve spool.

- Dual Inlet - Single Exhaust 4 Way.
- Insufficient pressure at main valve inlet.
- Media, at main valve inlet, other than air.
- Extremely fast cycling.

---

### 53 STYLE Solenoid Operator with Manual Override

This manual override is a 3-way NC valve that when pushed, directs pilot pressure to shift the main spool. Pressure must be present at main valve inlet for this override to function.

---

### STACKING - PRESSURE MANIFOLDED

Versions of these 1400 Series 1/4 NPT solenoid valves with different adaptor blocks can be stacked and pressure manifolded for space and money savings. The valve bodies are bolted together with 4 through tie bolts and the pressure is manifolded with O-Ring seals between valves. Inlet pressure can be connected to either or both ends of the stack. Due to the fact that the pressure port, on all valve bodies, is tapped on both sides, the pressure manifold can be plugged at any point within the stack. This allows you to supply the stack with two different pressures, one from each end. Versions of the Air Pilot, Rod Actuator, Roller Cam and Small Palm Button valves may be mounted in the same stack along with these solenoid valves.

---

### TO ORDER

Specify the quantity of each model desired, the order in which they are to be assembled, and Brackets, if desired.
## Features

- Black anodized aluminum bar stock body
- Honed and burnished bore
- Lightweight Delrin® spool provides fast, positive, reliable response
- Simplicity • Reliability
- Corrosion resistant construction
- Buna N seals • Operation to 150 psi
- Solenoid operator information see page 11.31
- $Cv = 1.0$
- 56.2 SCFM Free flow to atmosphere @ 80 psi
- Prelubed with Magnalube®-G grease
- Operating temperature:
  - $+32°F$ ($0°C$) to $+122°F$ ($50°C$) ambient.
  - $+32°F$ ($0°C$) to $+122°F$ ($50°C$) media.

Standard catalog models are suitable for operation in intermittent low temperatures in a range of $0°$ to $+32°F$.

A custom aluminum spool may be substituted when long-term application temperatures are expected to be $0°$ to $+32°F$. These should be limited to double solenoid actuation. Consider that actuation force may exceed catalog specs and that spring return models may not be reliable at these low temperatures. Please consult factory.

## Options

<table>
<thead>
<tr>
<th>Options</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>External Pilot</td>
<td>-X</td>
</tr>
<tr>
<td>† External Pilot and Viton Seals</td>
<td>-XV</td>
</tr>
<tr>
<td>Light Spring</td>
<td>-L</td>
</tr>
</tbody>
</table>

† Viton Seals are available in the main valve only, for media compatibility, and therefore only in conjunction with External Pilot: $+32°F$ ($0°C$) to $+122°F$ ($50°C$).

## Operating Ranges, psi

<table>
<thead>
<tr>
<th></th>
<th>#1 Solenoid</th>
<th>#4 Solenoid</th>
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<tbody>
<tr>
<td></td>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
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### Internal pilot supply (standard) inlet pressure

<p>| | | |</p>
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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Non Spring Return</td>
<td>30 to 130</td>
<td>30 to 145</td>
</tr>
<tr>
<td>Spring Return</td>
<td>50 to 130</td>
<td>50 to 145</td>
</tr>
<tr>
<td>Light Spring Option</td>
<td>40 to 130</td>
<td>40 to 145</td>
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### External pilot supply, Option -X inlet pressure

- 0 to 150

### External pilot supply, Option -X pilot supply

- 0 to 150
**58 STYLE Solenoid Valve, Model Number Code**

<table>
<thead>
<tr>
<th>Primary Actuator</th>
<th>Secondary Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>F = Micro DIN</td>
<td>F = Micro DIN</td>
</tr>
<tr>
<td>G = Wire leads</td>
<td>G = Wire leads*</td>
</tr>
<tr>
<td>S = Spring**</td>
<td>S = Spring**</td>
</tr>
<tr>
<td>P = Pilot**</td>
<td>P = Pilot**</td>
</tr>
<tr>
<td>R = Rod**</td>
<td>R = Rod**</td>
</tr>
<tr>
<td>B = Small Button**</td>
<td>B = Small Button**</td>
</tr>
<tr>
<td>L = Large Button**</td>
<td>L = Large Button**</td>
</tr>
</tbody>
</table>

**Specifications subject to change without notice or incurring obligation**

Example: **14FS-4-41100-120/60**

1/4 NPT – Primary Actuator Solenoid with Micro DIN coil; Secondary Actuator, Spring Return – 4 Way Function 3.5 Watt Solenoid; Primary Solenoid Upright position with Manual Override in Position #1; Secondary Actuator is not a Solenoid; no Manual Override on Secondary Actuator – No Options – 120 Volt/60 Hertz.

**Upright**

Solenoid Attitude #1

(Solenoid centerline 90° to Valve Body centerline)

**Inline**

Solenoid Attitude #5

(Solenoid centerline inline with Valve Body centerline)
Directional Control Valves

38 SERIES: 3/8 NPT Ported Air Valves
12, 12A & 12B SERIES: 1/2 NPT Ported Air Valves

Features
- Single Subbase or multiple manifolds with 3/8 and 1/2 NPT ports for 4 Way - 2 & 3 Position see Pg 11.27.
- High flow factors, see Pg 11.27.
- Parts anodized for corrosion resistance.
- Aluminum center cages, anodized gold, have lips to hold seals in place.
- Spool cushioned with Delrin®-Urethane bumper combination that absorbs shock but does not bounce the spool.
- Simple construction for easy servicing.
- Spool “Lands” double tapered and polished to assure easy entry into seal.
- Prelubed with Magnalube®-G grease.

Catalog Options
- Manual Overrides for Piloted and Solenoid Valves
- External Pilot Supply for Solenoid Valve Option -X
- Explosion Proof Operators, Spade Coil Connections, and other Solenoid Coil choices - see Pg 11.29 - 11.32
- High Flow Body (see Model Charts)
- Service Kits
  2 or 3 Way - Seal Kit 12PV-903
  4 Way - Seal Kit 12PV-904
- Dual Inlet - Single Exhaust - 4 Way: See note below
- Mufflers for Solenoid Exhaust...
  SM-10, See page 14.4
- Other Operator Combinations
  Solenoid - Pilot Return
  Solenoid - Push-Pull Knob
  See Model Charts

Spools

Custom Options
- 10-32 Pilot Ports
- 10-32 Auxiliary Pressure Outlets
- Viton Seals
- Stacking and Manifolding to Customer requirements

Specials
Fabco-Air, Inc. has the expertise and willingness to design and modify these valves to your necessary and specific job requirements. Please advise us of your needs. See pages ii & iii.

Note: Any of these 4 Way Valves, except the internally supplied Solenoid Valves, (See Option -X) can be used as Dual Inlet, Single Exhaust. Using this concept, with different pressures for force application and retraction, can effect large savings of high pressure air and its cost. The larger the cylinder or the faster the cycle, the higher the savings.
PILOT OPERATED
When Ordering:
Specify Model Number from chart. Specify Options.
(See page 11.27 & 11.28 for Dimensional Information.)

OPERATING RANGE:
Inlet Pressure: 0 - 150 psi
Pilot Pressure:
Models without Spring: 10 - 150 psi
2 Position Spring Return: 45 - 150 psi
3 Position Spring Centered: 30 - 150 psi

Optional Manual Overrides | Model Suffix
--- | ---
LOCKING | -MO1
LOCKS IN - Does not lock OUT | -MO2
Does not lock IN - LOCKS OUT | -MO3
NON-LOCKING | -MO4

HAND LEVER OPERATED
When Ordering:
Specify Model Number from chart. Specify Options.
(See page 11.27 & 11.28 for Dimensional Information.)

OPERATING RANGE: 0 - 150 psi

PUSH-PULL KNOB OPERATED
When Ordering:
Specify Model Number from chart. Specify Options.
(See page 11.27 & 11.28 for Dimensional Information.)

OPERATING RANGE: 0 - 150 psi
Standard knob color is black.
For red knob add suffix -R to Model Number.

<table>
<thead>
<tr>
<th>Direct Ported</th>
<th>SUBBASE OR MANIFOLD MOUNTED</th>
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<tbody>
<tr>
<td>3/8 NPT</td>
<td>1/2 NPT</td>
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<table>
<thead>
<tr>
<th>2 Position</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Pilot</td>
<td>2 Way - 3 Way</td>
</tr>
<tr>
<td>Spring Return</td>
<td>4 Way</td>
</tr>
<tr>
<td>383-SP</td>
<td>123-SP</td>
</tr>
<tr>
<td>38-SP</td>
<td>12B-SP</td>
</tr>
<tr>
<td>12-SP</td>
<td>12B-SP</td>
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</table>

<table>
<thead>
<tr>
<th>3 Position</th>
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</thead>
<tbody>
<tr>
<td>Double Pilot</td>
<td>2 Way - 3 Way</td>
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<tr>
<td>Spring Return</td>
<td>4 Way</td>
</tr>
<tr>
<td>383-DP</td>
<td>123-DP</td>
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<td>38-SP</td>
<td>12B-SP</td>
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<tr>
<td>12-SP</td>
<td>12B-SP</td>
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<table>
<thead>
<tr>
<th>4 Way</th>
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</thead>
<tbody>
<tr>
<td>Double Pilot</td>
<td>Type B Spool</td>
</tr>
<tr>
<td>Push</td>
<td>4 Way</td>
</tr>
<tr>
<td>38-DPB</td>
<td>12-DPB</td>
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<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Double Pilot</td>
<td>Type F Spool</td>
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<tr>
<td>Push</td>
<td>4 Way</td>
</tr>
<tr>
<td>38-DPF</td>
<td>12-DPF</td>
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<table>
<thead>
<tr>
<th>3 Position</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Type B Spool</td>
<td>4 Way</td>
</tr>
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<td>38-HLS</td>
<td>123-HLS</td>
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<td>38-HL</td>
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<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Detented</td>
<td>Type B Spool</td>
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<tr>
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<td>123-HLB</td>
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<tr>
<td>38-HL</td>
<td>12B-HL</td>
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<table>
<thead>
<tr>
<th>4 Way</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Detented</td>
<td>Type F Spool</td>
</tr>
<tr>
<td>38-HLF</td>
<td>123-HLF</td>
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<td>38-HLSB</td>
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<table>
<thead>
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<th>4 Way</th>
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</thead>
<tbody>
<tr>
<td>Push - Pull</td>
<td>Knob Both Ends</td>
</tr>
<tr>
<td>(Natural Detent)</td>
<td>2 Way - 3 Way</td>
</tr>
<tr>
<td>383-PO</td>
<td>123-PO</td>
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</table>

<table>
<thead>
<tr>
<th>4 Way</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Push</td>
<td>Knob Both Ends</td>
</tr>
<tr>
<td>Spring Centered</td>
<td>2 Way - 3 Way</td>
</tr>
<tr>
<td>Type B Spool</td>
<td>4 Way</td>
</tr>
<tr>
<td>383-PA</td>
<td>123-PA</td>
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</table>

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Push</td>
<td>Knob Both ends</td>
</tr>
<tr>
<td>Spring Centered</td>
<td>2 Way - 3 Way</td>
</tr>
<tr>
<td>Type F Spool</td>
<td>4 Way</td>
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<tr>
<td>38-PF</td>
<td>12-PF</td>
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</table>

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Push</td>
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<tr>
<td>Spring Centered</td>
<td>2 Way - 3 Way</td>
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<tr>
<td>Type F Spool</td>
<td>4 Way</td>
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<tr>
<td>38-PFF</td>
<td>12-PFF</td>
</tr>
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</table>
Directional Control Valves

3/8 & 1/2 NPT 12, 12A, 12B & 38 Series

3/8 & 1/2 NPT Ported, 53 STYLE Solenoid Controlled, Pilot Operated Air Valves

2 Way, 3 Way - 2 Position — 4 Way 2 or 3 Position — Operation to 150 PSI Air

See pages 11.27 & 11.28 for dimensional information.

Operating Temperature:
0°F (–18°C) to +104°F (40°C) ambient.
0°F (–18°C) to +150°F (65°C) media.

When Ordering:
Specify Model Number from Chart
Specify Options
Specify Volts / Hertz
See pages 11.29 & 11.30 for Solenoid Operator, Coil and Housing information.

Conduit Housing “C”

<table>
<thead>
<tr>
<th></th>
<th>3/8 NPT</th>
<th>1/2 NPT</th>
<th>1/2NPT High Flow</th>
<th>Sub-base/Manifold, See Pg. 11.27</th>
</tr>
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<tbody>
<tr>
<td><strong>2 Position</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Solenoid</td>
<td>383-CS</td>
<td>123-CS</td>
<td>123B-CS</td>
<td>NA</td>
</tr>
<tr>
<td>Spring Return</td>
<td>3830-CS</td>
<td>1230-CS</td>
<td>1230B-CS</td>
<td>NA</td>
</tr>
<tr>
<td>4 Way</td>
<td>38-CS</td>
<td>12-CS</td>
<td>12B-CS</td>
<td>12A-CS</td>
</tr>
<tr>
<td>Single Solenoid</td>
<td>383-C</td>
<td>123-C</td>
<td>123B-C</td>
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</tr>
<tr>
<td>Pilot Return</td>
<td>3830-C</td>
<td>1230-C</td>
<td>1230B-C</td>
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<tr>
<td>4 Way</td>
<td>38-C</td>
<td>12-C</td>
<td>12B-C</td>
<td>12A-C</td>
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<tr>
<td>Single Solenoid</td>
<td>383-CP</td>
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<td>123B-CP</td>
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<td>123-CP</td>
<td>123B-CP</td>
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<tr>
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<td>12-C</td>
<td>12B-CP</td>
<td>12A-CP</td>
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<td>123B-CC</td>
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<td>12-CC</td>
<td>12B-CC</td>
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Grommet Housing “G”

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<th>1/2NPT High Flow</th>
<th>Sub-base/Manifold, See Pg. 11.27</th>
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<tr>
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<td>123-GS</td>
<td>123B-GS</td>
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<tr>
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<td>123-AG</td>
<td>123B-GA</td>
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<td>Pilot Return</td>
<td>3830-AG</td>
<td>1230-AG</td>
<td>1230B-GA</td>
<td>NA</td>
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<tr>
<td>4 Way</td>
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<td>12-GA</td>
<td>12B-GA</td>
<td>12A-GA</td>
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<td>123-GP</td>
<td>123B-GP</td>
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<td>Knob Return</td>
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<td>1230-GP</td>
<td>1230B-GP</td>
<td>NA</td>
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<tr>
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<td>12-GP</td>
<td>12B-GP</td>
<td>12A-GP</td>
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<td>123-GG</td>
<td>123B-GG</td>
<td>NA</td>
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<tr>
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<td>38-GG</td>
<td>12-GG</td>
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Male Mini-DIN Housing “F”

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<thead>
<tr>
<th></th>
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<th>1/2NPT High Flow</th>
<th>Sub-base/Manifold, See Pg. 11.27</th>
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<tbody>
<tr>
<td><strong>2 Position</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Single Solenoid</td>
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<td>123-FS</td>
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<td>1230-FS</td>
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<tr>
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<td>12-FS</td>
<td>12B-FS</td>
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<td>123-FA</td>
<td>123B-FA</td>
<td>NA</td>
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<tr>
<td>Pilot Return</td>
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<td>1230-FA</td>
<td>1230B-FA</td>
<td>NA</td>
</tr>
<tr>
<td>4 Way</td>
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<td>12-FA</td>
<td>12B-FA</td>
<td>12A-FA</td>
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<tr>
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<td>123-FP</td>
<td>123B-FP</td>
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<tr>
<td>Knob Return</td>
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<td>1230B-FP</td>
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<td>12B-FP</td>
<td>12A-FP</td>
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<td>123-FF</td>
<td>123B-FF</td>
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<td>12-FF</td>
<td>12B-FF</td>
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3 Position

<table>
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<th>1/2NPT High Flow</th>
<th>Sub-base/Manifold, See Pg. 11.27</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Solenoid</td>
<td>383-FAB</td>
<td>123-FAB</td>
<td>123B-FAB</td>
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</tr>
<tr>
<td>Spring Return</td>
<td>3830-FAB</td>
<td>1230-FAB</td>
<td>1230B-FAB</td>
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<tr>
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<td>12-FAB</td>
<td>12B-FAB</td>
<td>12A-FAB</td>
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<tr>
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<td>123-FA</td>
<td>123B-FA</td>
<td>NA</td>
</tr>
<tr>
<td>Pilot Return</td>
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<td>1230-FA</td>
<td>1230B-FA</td>
<td>NA</td>
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<td>12-FA</td>
<td>12B-FA</td>
<td>12A-FA</td>
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<td>123-FP</td>
<td>123B-FP</td>
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<td>1230B-FP</td>
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<td>12B-FP</td>
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<td>383-FF</td>
<td>123-FF</td>
<td>123B-FF</td>
<td>NA</td>
</tr>
<tr>
<td>4 Way</td>
<td>38-FF</td>
<td>12-FF</td>
<td>12B-FF</td>
<td>12A-FF</td>
</tr>
</tbody>
</table>

Operating Ranges, psi

- Internal Pilot Supply (Standard) Inlet Pressure
  - No Spring: 10 to 150
  - Spring: 2 Position: 45 to 150
  - 2 Position Light Service Spring, Option -L: 30 to 150
  - 3 Position: 30 to 150

- External Pilot Supply, Option -X:
  - Inlet Pressure: 0 to 150
  - Pilot Pressure, Same as Internal Pilot Supply above.

Optional Manual Overrides Model Suffix
- LOCKING: -MO1
- LOCKS IN - Does not lock OUT: -MO2
- Does not lock IN - LOCKS OUT: -MO3
- NON-LOCKING: -MO4
3/8 & 1/2 NPT Ported, 58 STYLE Solenoid Controlled, Pilot Operated Air Valves

2 Way, 3 Way - 2 Position — 4 Way 2 or 3 Position

Spring Return and Spring Centered Models NOT suitable for dry air service

### Specifications
- **Primary Actuator**
  - F = Micro DIN
  - G = Wire leads
  - See page 11.31
- **Secondary Actuator**
  - FB = Micro DIN, 3 Position Type B
  - FF = Micro DIN, 3 Position Type F
  - GB = Wire leads, 3 Position Type B
  - GF = Wire leads, 3 Position Type F
- **Solenoid Watts**
  - 1 = 0.9 Watts
  - 4 = 3.5 Watts
- **Primary Solenoid Manual Override**
  - 0 = None
  - 1 = Position #1
  - 2 = Position #2
  - 3 = Position #3
  - 4 = Position #4
- **Secondary Solenoid Manual Override**
  - 0 = None
  - 1 = Position #1
  - 2 = Position #2
  - 3 = Position #3
  - 4 = Position #4
- **Series**
  - 38 = 3/8 NPT, 4 Way
  - 383 = 3/8 NPT, 3 Way NC
  - 3830 = 3/8 NPT, 3 Way NO
  - 12 = 1/2 NPT, 4 Way
  - 123 = 1/2 NPT, 3 Way NC
  - 1230 = 1/2 NPT, 3 Way NO
  - 12A = 4 Way, Subbase Mount
  - 12B = 1/2 NPT, 4 Way, 2 Position High Flow
  - 123B = 1/2 NPT, 3 Way NC, High Flow
  - 1230B = 1/2 NPT, 3 Way NO, High Flow

### Operating Ranges, psi

<table>
<thead>
<tr>
<th>#1 Solenoid Watts</th>
<th>#4 Solenoid Watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
</tr>
</tbody>
</table>

Internal Pilot Supply (Standard)
- No Spring: 0.9 Watts
- Spring: 3.5 Watts

### Operating Temperature
- 0°F (–18°C) to +122°F (50°C) ambient.
- 0°F (–18°C) to +122°F (50°C) media.

### Example: 12FS-45100-120/60

1/2 NPT, 4 Way – Primary Actuator Solenoid with Micro DIN coil; Secondary Actuator, Spring Return – 3.5 Watt; Primary Solenoid Inline Attitude with Manual Override on Primary Solenoid in Position #1; Secondary Actuator is not a Solenoid; no Manual Override on Secondary Actuator – No Options – 120 Volt/60 Hertz.
Specifications subject to change without notice or incurring obligation
The **53 STYLE** solenoid operator is a 3-way valve which, upon receiving an electrical signal, directs a pilot pressure to shift the main valve spool. Unless otherwise specified, the operator is internally supplied from the main valve inlet with pressure for piloting. If an external pilot supply is required specify suffix -X after the model number. This external pilot supply may be required; where the media through the main valve is of insufficient pressure for piloting, where the media through the main valve is something other than compressed air, for 4-way dual inlet-single exhaust, or other applications.

**53 STYLE SOLENOID OPERATOR**

See page 11.29 for Operator Details

Housing Can Rotate 360°

2 Position, Spring return Dimensions shown at the bottom of the page.

3 Position Spring Centering is incorporated within the operator dimensions.

**53 STYLE SOLENOID OPERATOR with Manual Override and External Pilot Supply, Option -X**

Option -X 1/8 NPT External Pilot Supply

See page 11.29 for Operator Details

Manual Override

2 Position, Spring return Dimensions shown at the bottom of the page.

3 Position Spring Centering is incorporated within the operator dimensions.

**58 STYLE Solenoid Operator – See page 11.26**

**HAND LEVER OPERATOR**

2 Position, Spring return Dimensions shown to right.

3 Position Spring Centering is incorporated within the operator dimensions.

**PALM BUTTON OPERATOR**

2 Position, Spring return Dimensions shown to right.

3 Position Spring Centering is incorporated within the operator dimensions.

**3 POSITION SPRING CENTERING OPERATOR FOR HAND LEVER ONLY**

2 Position, Spring return, Standard & Light Service

All valve models - Standard service spring consists of two concentric helical springs. Either may be removed for “Light” Service.
**53 STYLE Stocked Coils and Housings**

**Conduit Housing “C” and Grommet Housing “G”**

Non-molded – Class A 221°F (105°C) Rating,
24” Leads of AWG #18 Wire.

Stocked Voltages:
- 24, 120 and 240 Volt at 50 or 60 Hertz;
- 6, 12 and 24 Volt DC;
- Others available, see Options on page 11.30.

Temperature Range:
- 0°F (–18°C) to + 104°F (+40°C), ambient.
- 0°F (–18°C) to + 150°F (+65°C), media.

Typical Response Times:
- AC 4 to 8 milliseconds to open or close;
- DC 9 to 15 milliseconds to open;
- DC 5 to 12 milliseconds to close.

To compute current requirements (+15%) divide factor shown below by voltage

<table>
<thead>
<tr>
<th>Function</th>
<th>AC Volts, 60 Hertz</th>
<th>DC Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inrush, Amp</td>
<td>Holding, Amp</td>
</tr>
<tr>
<td></td>
<td>Inrush, Amp or Holding, Amp</td>
<td></td>
</tr>
<tr>
<td>2 Way NC</td>
<td>13.2 ÷ Volts</td>
<td>7.8 ÷ Volts</td>
</tr>
<tr>
<td>2 Way NO</td>
<td>15.2 ÷ Volts</td>
<td>9.0 ÷ Volts</td>
</tr>
<tr>
<td>3 Way NC or NO</td>
<td>15.2 ÷ Volts</td>
<td>9.0 ÷ 120 = .13 Amp</td>
</tr>
</tbody>
</table>

**Male Mini-DIN Housing “F”**

Molded – Water Tight - Class A 221°F (105°C) IP65 Coil Rating.
European (DIN) Style – 11 mm spacing.

See page 11.30 for connectors or contact your local distributor for additional choices.

Can also be connected with individual .25” quick connect terminals.

Stocked Voltages:
- 24, 120 and 240 Volt at 50 or 60 Hertz;
- 12 and 24 Volt DC;
- Others available, see Options on page 11.30.

Temperature Range:
- 0°F (–18°C) to + 104°F (+40°C), ambient.
- 0°F (–18°C) to + 150°F (+65°C), media.

Typical Response Times:
- AC 4 to 8 milliseconds to open or close;
- DC 9 to 15 milliseconds to open;
- DC 5 to 12 milliseconds to close.

To compute current requirements (+15%) divide factor shown below by voltage.

<table>
<thead>
<tr>
<th>Function</th>
<th>AC Volts, 60 Hertz</th>
<th>DC Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inrush, Amp</td>
<td>Holding, Amp</td>
</tr>
<tr>
<td></td>
<td>Inrush, Amp or Holding, Amp</td>
<td></td>
</tr>
<tr>
<td>2 Way NC</td>
<td>14.4 ÷ Volts</td>
<td>9.7 ÷ Volts</td>
</tr>
<tr>
<td>2 Way NO</td>
<td>15.2 ÷ Volts</td>
<td>11.8 ÷ Volts</td>
</tr>
<tr>
<td>3 Way NC or NO</td>
<td>15.2 ÷ Volts</td>
<td>11.8 ÷ 120 = .10 Amp</td>
</tr>
<tr>
<td>Examples</td>
<td>15.2 ÷ 120 = .13 Amp</td>
<td>10.4 ÷ 12 = .87 Amp</td>
</tr>
</tbody>
</table>
### 53 STYLE Options for Conduit Housing “C” and Grommet Housing “G”

**AC Voltages from 5.4 to 575 in 50 or 60 Hertz.**

**DC Voltages from 3 to 300.**

- **Molded Coil** . . . . . . . . . . . . . . . . . . . . . . Option -M
  Water tight, Molded Coil with Class A 221°F (105°C) Rating. Coil is completely molded in epoxy for maximum moisture resistance.
  NEMA 1, 2, and 3 when in Conduit “C”, or Grommet “G” housing.

- **Potted Coil** . . . . . . . . . . . . . . . . . . . . . . Option -P
  Coil is epoxy potted into Conduit “C” housing only.
  Class F 221°F (105°C) Rating.
  It offers maximum moisture and vibration resistance.
  NEMA 3R, 3S, 4, 4X, 6, 11, 12 & 13.

- **High Temperature** . . . . . . . . . . . . . . . . . . Option -H
  Molded coil with 356°F (180°C) rating.

- **Viton Seals**
  (for media compatibility) . . . . . . . . . . . . . Option -V

- **Strain Relief Connector** . . . . . . . . . . . . . Option -Q

- **“AN” Connector** . . . . . . . . . . . . . . . . . . Option -W

- **Splice Box** . . . . . . . . . . . . . . . . . . . . . . Option -J

- **Mounting Bracket** . . . . . . . . . . . . . . . . . . Option -R

- **Third Wire Ground** . . . . . . . . . . . . . . . . . . Option -CC
  A CSA requirement.

### 53 STYLE Options for Male Mini-DIN Housing “F”

**AC Voltages from 4.4 to 277 in 50 or 60 Hertz.**

**DC Voltages from 3 to 180.**

- **Viton Seals**
  (for media compatibility) . . . . . . . . . . . . . Option -V

### 53 STYLE Options for Yoke Housing

- **Yoke with Standard coil**
  (24" flying leads) . . . . . . . . . . . . . . . . . . . . . . . . Option -YB

- **Yoke with Molded coil**
  (24" flying leads) . . . . . . . . . . . . . . . . . . . . . . . . Option -YM

- **Yoke with Molded Spade Terminal and coil** . . . . . . . . . . . . Option -KM
  Yoke replaces housing for protected and control box applications. Molded coil with two .25" spade terminals for quick assembly and disconnect.

### 53 STYLE Explosion Proof Option -EP

UL File #E37780
CSA File #LR-26894
For hazardous locations, includes Molded Coil.
UL Class I Div. 1 Groups C & D.
UL Class II Div. 1 Groups E, F & G.
UL Class II Div. 2 Groups A, B, C, D, E & F.
NEMA 7 Class 1 Group D.
NEMA 9 & 9A Class II Groups F & G.

**CAUTION!**
To prevent explosion, disconnect electrical circuit before opening enclosure!
Keep tightly closed when in operation.

**Option -EP Current Factors**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>AC Volts, 60 Hertz</th>
<th>Inrush</th>
<th>Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Way NC</td>
<td>2 Way NO</td>
<td>16.0</td>
<td>7.8</td>
</tr>
<tr>
<td>3 Way NC or NO</td>
<td>3 Way NO</td>
<td>16.9</td>
<td>10.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th>DC Volts</th>
<th>Inrush or Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Way NC or NO</td>
<td>2 Way NO</td>
<td>7.2</td>
</tr>
<tr>
<td>3 Way NC or NO</td>
<td>3 Way NO</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Divide “Factor” shown above by Volts to find current.
See examples on opposite page.
Solenoid, Coil and Housing Information

58 Style
3 Way - Normally Closed - Exhaust to Atmosphere
Temperature Range:
- 0°F (–18°C) to + 122°F (+50°C), ambient.
- 0°F (–18°C) to + 122°F (+50°C), media.
Available with or without Push Button Manual Override

#1 Operator
0.9 Watts
- Volts – 12 VDC . . . 24 VDC
- Amperage Draw – (approximate) . . . . . . . . . . 73 mA . . . . 37 mA
Response time: 9 ms @ 0 psi
- 0.6 mm Inlet Orifice - 0.8 mm Exhaust Orifice
- 130 psi Maximum Operating Pressure

#4 Operator
3.5 Watts
- Volts – See Chart at Right
- Amperage Draw – See Chart at Right
Response time: 8 ms with DC Volts;
- 3 - 9 ms with AC Volts.
- 1.0 mm Inlet Orifice - 1.0 mm Exhaust Orifice
- 145 psi Maximum Operating Pressure

58 Style
[#1 (0.9 Watts), or #4 (3.5 Watts)] Operator

Male Micro-DIN, Coil “F”
Molded – Water Tight
- Class A 221°F (105°C) IP65 Coil Rating
- European (DIN) Style – 9.4 mm spacing
See page 11.32 for connectors or contact your local distributor for additional choices.

58 Style
[#1 (0.9 Watts), or #4 (3.5 Watts)] Operator

Wire Leads, Coil “G”
Molded – Water Tight
- Class A 221°F (105°C) IP65 Coil Rating
- Leadwires – AWG #20, 18 inches long
Solenoid Accessories 53 & 58 Style

Solenoid Exhaust Mufflers, #SM-10
for "C" & "G" housings and "F" DIN coil operators. See page 14.1.

Connectors 53 Style (11 mm spacing)
NEMA 4, IP65
For Male Mini-DIN Housing “F”

Part Number without LED: 122-09-N
Black Housing (300v max. DC, 250v max. AC 50/60 Hz)

<table>
<thead>
<tr>
<th>Part Number with LED:</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>122-09-T-A.1-12VDC</td>
<td>12 VDC</td>
</tr>
<tr>
<td>122-09-T-A.1-24/60</td>
<td>24 VDC, 12-24 VAC 50/60 Hz</td>
</tr>
<tr>
<td>122-09-T-A.1-120/60</td>
<td>48-120 VDC, 100-240 VAC 50/60 Hz</td>
</tr>
</tbody>
</table>

(Transparent Housing allows LED to be seen)

Receptacle with 11 mm spacing mates with Mini-DIN Housing “F”

Connectors 58 Style (9.4 mm Spacing)
NEMA 4, IP65
For Male Micro-DIN Housing “F”

Part Number without LED: 192-07-N
Black Housing (250v max. DC or AC 50/60 Hz)

<table>
<thead>
<tr>
<th>Part Number with LED:</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>192-07-T-A.1-12/60</td>
<td>12 VDC or VAC 50/60 Hz</td>
</tr>
<tr>
<td>192-07-T-A.1-24/60</td>
<td>24 VDC or VAC 50/60 Hz</td>
</tr>
<tr>
<td>192-07-T-A.1-120/60</td>
<td>110-240 VDC or VAC 50/60 Hz</td>
</tr>
</tbody>
</table>

(Transparent Housing allows LED to be seen)