**Directional Control Valves**

**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

---

**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 . . . . . . . . . . . . 1.2 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 . . . . . . . . . . . . . . 1.2 lb.

---

### Valve Body Dimensions

**Valve Body Dimensions**

**2 WAY**

<table>
<thead>
<tr>
<th>12</th>
<th>10</th>
<th>.31</th>
</tr>
</thead>
<tbody>
<tr>
<td>.16</td>
<td>.13</td>
<td>1.25</td>
</tr>
<tr>
<td>Primary</td>
<td>Secondary</td>
<td></td>
</tr>
</tbody>
</table>

**3 Way**

<table>
<thead>
<tr>
<th>12</th>
<th>10</th>
<th>.44</th>
</tr>
</thead>
<tbody>
<tr>
<td>.16</td>
<td>.13</td>
<td>1.25</td>
</tr>
<tr>
<td>Primary</td>
<td>Secondary</td>
<td></td>
</tr>
</tbody>
</table>

This 3 Way Valve may be used for any 3 Way, Selector or Divertor service.

<table>
<thead>
<tr>
<th>14</th>
<th>12</th>
<th>.63</th>
</tr>
</thead>
<tbody>
<tr>
<td>.16</td>
<td>.13</td>
<td>1.75</td>
</tr>
<tr>
<td>Primary</td>
<td>Secondary</td>
<td></td>
</tr>
</tbody>
</table>

**4 Way - 5 Port**

<table>
<thead>
<tr>
<th>14</th>
<th>12</th>
<th>.63</th>
</tr>
</thead>
<tbody>
<tr>
<td>.16</td>
<td>.13</td>
<td>1.75</td>
</tr>
<tr>
<td>Primary</td>
<td>Secondary</td>
<td></td>
</tr>
</tbody>
</table>

**4 Way - 5 Port** May be used as either single inlet - dual exhaust or dual inlet - single exhaust.

---

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

**18 Series**

**FEATURES**
- Aluminium 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.
- 4 Way - 5 port may be used as either single inlet - dual exhaust or dual inlet - single exhaust.
- Operating temperature +32°F to +180°F; Solenoid controlled models +150°F max. See pages 11.9 and 11.11.

**OPTIONS**
- Light spring – Specify Option -L
- #10-32 Pilot Port – Specify Option -E
- Viton seals – Specify Option -V
- Spools for bleeders 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.

### 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.
- Detented: 3.0 lb.

### Panel Mount Button

Phenolic button with plated stainless 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. Force to actuate:
- Standard spring: 4.0 lb.
- Light spring (Option -L): 3.0 lb.
- Detented: 2.0 lb.

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

<table>
<thead>
<tr>
<th>Palm Button Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1800-1 Large Button</td>
</tr>
<tr>
<td>No. 1800-2 Small Button</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rod Actuator Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1800-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Housing Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1800-4 Light Spring only (for Option L).</td>
</tr>
<tr>
<td>No. 1800-5 Standard Spring only</td>
</tr>
<tr>
<td>No. 1800-46 Light Spring &amp; Housing Assy (for Option -L).</td>
</tr>
<tr>
<td>No. 1800-56 Standard Spring &amp; Housing Assembly.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Pilot Amplifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8 NPT Standard</td>
</tr>
<tr>
<td>No. 18 AMP-1 1/8 NPT Port</td>
</tr>
<tr>
<td>No. 10 AMP-1 1/32 Port Option -E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pilot Bushing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1800-10 1/8 NPT Port</td>
</tr>
<tr>
<td>No. 1800-18 1/8 NPT Port</td>
</tr>
</tbody>
</table>

| 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. |

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

800.696.6165
Directional Control Valves

18 Series

1/8 NPT
2, 3 & 4 Way

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 • 14.2 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.

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
- 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 11.10
Note 1: Optional Flow Path

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

Replacement Spool and Seals
- Conduit Housing
  18CC-2
  18CC-3
  18CC-4
- Grommet Housing
  18GG-2
  18GG-3
  18GG-4
- Male Mini-DIN Housing
  18FF-2
  18FF-3
  18FF-4
- Replacement Spool and Seals
  1800-922
  1800-923
  1800-924

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

DOUBLE SOLENOID
To Order Specify:
- Model Number from chart
- Options
  - Volts & Hertz (See page 11.29)
**Directional Control Valves**

**18 Series**

---

**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.

---

**Spring Return Valves**

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

---

**4 Way - 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).

---

**Spring Return: Standard and Optional Light**

**Pilot Return: -P**

See Page 11.7

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

---

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

**www.comoso.com**

**800.696.6165**
Directions Control Valves

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:
  \[ +32^\circ F (0^\circ C) \text{ to } +122^\circ F (50^\circ C) \text{ ambient.} \]
  \[ +32^\circ F (0^\circ C) \text{ to } +122^\circ F (50^\circ C) \text{ media.} \]

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 (Standard) Inlet Pressure</td>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
</tr>
<tr>
<td>Non Spring Return</td>
<td>20 to 130....20 to 145</td>
<td></td>
</tr>
<tr>
<td>Spring Return</td>
<td>60 to 130....60 to 145</td>
<td></td>
</tr>
<tr>
<td>Light Spring Option -L</td>
<td>40 to 130....40 to 145</td>
<td></td>
</tr>
</tbody>
</table>

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

External Pilot Supply, Option -X Pilot Supply
- Non Spring Return 20 to 130....20 to 145
- Spring Return 60 to 130....60 to 145
- Light Spring Option -L 40 to 130....40 to 145
### 58 STYLE Solenoid Valve, Model Number Code

<table>
<thead>
<tr>
<th>18</th>
<th>F</th>
<th>S</th>
<th>4</th>
<th>4</th>
<th>1</th>
<th>1</th>
<th>0</th>
<th>0</th>
<th>120/60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td>1/8 NPT</td>
<td>1/8 NPT</td>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
<td>0 = None</td>
<td>1 = Position #1</td>
<td>2 = Position #2</td>
<td>3 = Position #3</td>
<td>4 = Position #4</td>
</tr>
<tr>
<td>Function</td>
<td>2 = 2 Way</td>
<td>3 = 3 Way</td>
<td>4 = 4 Way</td>
<td>Primary Solenoid Manual Override</td>
<td>Secondary Solenoid Manual Override</td>
<td>#1 Solenoid</td>
<td>#4 Solenoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solenoid Watts</td>
<td>1 = 0.9 Watts</td>
<td>4 = 3.5 Watts</td>
<td>Primary Solenoid Upright position with Manual Override</td>
<td>Secondary Solenoid Inline with Body</td>
<td>0.9 Watts</td>
<td>3.5 Watts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Solenoid Attitude</td>
<td>1 = Upright 90° to Body</td>
<td>5 = Inline with Body</td>
<td></td>
<td>Volts / Hertz</td>
<td>12 VDC</td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Solenoid Attitude</td>
<td>0 = Other than Solenoid</td>
<td>1 = Upright 90° to Body</td>
<td></td>
<td>#1 Solenoid</td>
<td>12 VDC</td>
<td>24 VDC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Actuator End</td>
<td>5 = Inline with Body</td>
<td></td>
<td></td>
<td>#4 Solenoid</td>
<td>24/60 VAC</td>
<td>120/60 VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Primary Actuator End | Micro DIN* | | | | 120 Volt/60 Hertz.

#### 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.

---

**Upright**

Solenoid Attitude #1

(Solenoid centerline 90° to Valve Body centerline)

**Inline**

Solenoid Attitude #5

(Solenoid centerline inline with Valve Body centerline)