**INTRODUCTION**

Humphrey Manual and Mechanical Air Valves feature the exclusive diaphragm-poppet design originated by Humphrey. The design consists of two specially contoured diaphragms mounted to an axial stem within a full orifice valve body. This classic design is simple, versatile, and highly reliable. Valves of this design perform equally well with or without air supply lubrication, and better than competitive products when under poor air conditions.

Humphrey Manual and Mechanical valves are available in 2-, 3- and 4-way porting types, and in a variety of rugged actuator styles.

- Mechanical actuator styles: Ball, Plunger, Cam and Overstroke-Compensated Cam.

**MANUAL/MECHANICAL VALVE FEATURES:**

- Simple construction
- No lubrication
- Reliable Operation
- Compact and Lightweight
- Rugged
- Cost effective

**FLOW PATH, BASIC NORMALLY CLOSED (NC) AND NORMALLY OPEN (NO) VALVES**

**250 NC, Unactuated**

Media applied to IN routes down, passing through perforations in bottom diaphragm-poppet and becomes primary force holding valve closed. Top diaphragm-poppet is not seated, so OUT port is open to EXHAUST port (backside, not shown).

**250 NC, Actuated**

When the button is depressed, the top diaphragm-poppet seats, while bottom diaphragm-poppet opens, allowing media to pass through to OUT port, while EXHAUST port (backside, not shown), becomes blocked.

**250 NO, Unactuated**

Media applied to IN routes up, passing by unseated diaphragm-poppet to OUT port, and becomes primary force holding valve open. Bottom diaphragm-poppet is seated and OUT port is blocked from the EXHAUST port (backside, not shown).

**250 NO, Actuated**

When the button is depressed, the top diaphragm-poppet seats, while bottom diaphragm-poppet opens, allowing media to become blocked from OUT port, while EXHAUST port (backside, not shown), becomes open to OUT port.

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**TAC Valves**

- 41T
- 4PPX
- 41PP

**Three-Way Valves**

- 12SP
- 250PL

**Four-Way Valves**

- 250-4F
- 250-4H – Hand Valve
## Manual and Mechanical Valves

### 2-, 3-Way Valves

<table>
<thead>
<tr>
<th>Ports</th>
<th>CFM*</th>
<th>Valves</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAC</td>
<td>10-32</td>
<td>6</td>
<td>2P, 3P, 2V, 3V</td>
</tr>
<tr>
<td>TAC2</td>
<td>1/8</td>
<td>18</td>
<td>31P, 31PPX, 31V, 31V</td>
</tr>
<tr>
<td>125 Series Manual</td>
<td>1/8</td>
<td>18</td>
<td>125PLG, 125P, 125HO, 125T, 125V</td>
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<tr>
<td>125 Series Mechanical</td>
<td>1/8</td>
<td>18</td>
<td>125B, 125MC, 125MP</td>
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<td>250 Series Mechanical</td>
<td>1/4</td>
<td>50</td>
<td>250C</td>
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<tr>
<td>501 Series Manual</td>
<td>1/2</td>
<td>220</td>
<td>501V</td>
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<tr>
<td>500 Series Mechanical</td>
<td>1/2</td>
<td>160</td>
<td>500C</td>
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### 4-Way Valves

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</thead>
<tbody>
<tr>
<td>TAC</td>
<td>10-32</td>
<td>9</td>
<td>4P, 4PP, 4PPX, 4V</td>
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<tr>
<td>TAC2</td>
<td>1/8</td>
<td>18</td>
<td>41P, 41PP, 41PPX, 41V</td>
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<tr>
<td>TAC three-position</td>
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<td>6</td>
<td>41R-D(S)3, 41T-D(S)3</td>
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<tr>
<td>TAC3</td>
<td>1/4</td>
<td>31</td>
<td>42P, 42PP, 42PA</td>
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<tr>
<td>250-4 Series</td>
<td>1/4</td>
<td>50</td>
<td>250-4F, 250-4H</td>
</tr>
</tbody>
</table>

*Nominal flow @100 psi

### Force to Actuate @100 PSIG (lbs.)

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<tr>
<th></th>
<th>B</th>
<th>C</th>
<th>F</th>
<th>H</th>
<th>HO</th>
<th>MC</th>
<th>MP</th>
<th>P</th>
<th>PL</th>
<th>PLG</th>
<th>T</th>
<th>V</th>
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<td>7</td>
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<td>250</td>
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<td>5</td>
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<td>250-4</td>
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</table>
125 Series Manual Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust. These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass body construction (for alternate media).

### Features and Benefits
- "Bubble Tight" seal.
- Full ported 1/8" orifice, 1/8 PIPE ports.
- Fast cycling, high flow, quick exhaust.
- Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.
- Hard plumb mount, base mount, or panel mount using nuts or mounting base, via the 1”-20 UNEF body mounting threads or mounting base.
- Buna N seals standard. Fluorocarbon seals optional.

### Specifications

<table>
<thead>
<tr>
<th>Design Principle</th>
<th>Pressure Unbalanced, Air Return, Spring Assist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porting Type</td>
<td>2- or 3-Way</td>
</tr>
<tr>
<td>Port Size</td>
<td>1/8 PIPE</td>
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<tr>
<td>Media</td>
<td>Air, Inert Gas</td>
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<tr>
<td>Pressure Range</td>
<td>0–125 PSIG; PLG: 30–125 PSIG</td>
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<tr>
<td>Temperature Range</td>
<td>-20°F to 225°F</td>
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<tr>
<td>Flow @100 PSIG</td>
<td>18 CFM, 509 LPM (Cv=0.3)</td>
</tr>
</tbody>
</table>
125 Manual Valves
125PLG, 125P, 125HO, 125T, 125V

HOW TO OBTAIN SPECIFICATIONS FOR A PARTICULAR VALVE(S)

- Go directly to www.humphrey-products.com/dynamic/products
- Or, visit www.humphrey-products.com and select “Online Product Guide.”
- Once you have followed the steps to get the valve you need, select “Download Spec Sheet.” Doing this will create a personalized PDF of the valve, which you may save to your computer and print at your convenience. These spec sheets are helpful when placing your order(s).

HOW TO ORDER HUMPHREY VALVES AND ACCESSORIES

- Go directly to: www.humphrey-products.com/?q=content/find-distributor
- Or, visit www.humphrey-products.com, select “Find A Distributor,” and input your information to locate a distributor nearest you.
- Or, call Customer Service at 1-800-477-8707 for the name and phone number of your local distributor.

HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS

125HO – Hold On

125T – Finger Tip

125V – Toggle
250 Series Manual Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust.

These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass-body construction (for alternate media).

**Features and Benefits**
- "Bubble Tight" seal.
- Full ported 1/4" orifice, 1/4 PIPE ports.
- Fast cycling, high flow, quick exhaust.
- Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.
- Hard plumb mount, or panel mount using mounting base or mounting base.
- Buna N seals standard. Fluorocarbon seals optional.

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**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Design Principle:</th>
<th>Pressure Unbalanced, Air Return, Spring Assist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porting Type:</td>
<td>2- or 3-Way</td>
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<tr>
<td>Port Size:</td>
<td>1/4 PIPE</td>
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</table>

<table>
<thead>
<tr>
<th>Media:</th>
<th>Air, Inert Gas</th>
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<tr>
<td>Pressure Range:</td>
<td>0–125 PSIG; HO: 25–125 PSIG</td>
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<td>Temperature Range:</td>
<td>-20° to 225°F</td>
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<tr>
<td>Flow @100 PSIG:</td>
<td>50 CFM, 1415 LPM (Cv=0.8)</td>
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</tbody>
</table>
250 Manual Valves

250P, 250PL, 250F, 250V, 250HO, 250T

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250F – Foot Valve

250V – Toggle

250T – Finger Tip
250-4 Manual Valves

250-4F Series Foot Valve features the classic Humphrey diaphragm-poppet principle in a two position, 4-way configuration. The unbalanced, air/spring return design assures bubble-tight sealing actuated, or unactuated. Rugged 12-gauge steel guard protects valve and foot from falling objects. Peddle bottoms out, preventing over stroke and valve damage.

250-4H Series Hand/Lever Valve in the diaphragm poppet series achieves three position, 4-way function. Shipped normally closed/normally closed (Exhaust Center position) as standard.

Features and Benefits
- "Bubble Tight" seal.
- Great value compared to competitive models.
- Full ported 1/4" orifice, 1/4 PIPE ports.
- High flow, quick exhaust.
- Reliable operation in lubricated or not lubricated systems. No sliding seals.
- Foot Valve requires no mount. Remove grommets to hard mount.
- Mount Hand Valve via body threads or mounting base.
- Buna N seals standard. Fluorocarbon seals optional.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Design Principle:</th>
<th>Pressure Unbalanced, Air Return, Spring Assist</th>
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</thead>
<tbody>
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<td>Porting Type:</td>
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<tr>
<td>Port Size:</td>
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<td>Media:</td>
<td>Air, Inert Gas</td>
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<tr>
<td>Pressure Range:</td>
<td>0–125 PSIG</td>
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<tr>
<td>Temperature Range:</td>
<td>-20°F to 225°F</td>
</tr>
<tr>
<td>Flow at 100 PSIG:</td>
<td>50 CFM, 1415 LPM (Cv=0.8)</td>
</tr>
</tbody>
</table>

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The Humphrey piston-poppet, 501V Series 1/2 PIPE port, detented lever valve, achieves fully ported, high flow relative to overall size. Hard coated, cast aluminum body permits resistance to wear and easy mounting/plumbing. The pressure unbalanced piston-poppet design achieves greater flow than comparable 1/2" orifice valves and millions of trouble-free cycles.

500C Series Cam Operated Mechanical Valves feature the classic Humphrey diaphragm-poppet principle in high-low design. The unbalanced, air spring return design assures bubble-tight sealing actuated, or unactuated.

501V Features and Benefits
- Low leak rate.
- 1/2" orifice, 1/2 PIPE ports.
- High flow, quick exhaust.
- Buna N seals standard. Fluorocarbon seals optional.

500C Features and Benefits
- Low leak rate.
- 1/2" orifice, 1/2 PIPE ports.
- High flow, quick exhaust.
- Buna N seals standard. Fluorocarbon seals optional.
- Mount with body mounting holes.

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HUMPHREY PRODUCTS ARE SOLD WORLD-WIDE THROUGH AUTHORIZED DISTRIBUTORS
125/250 Mechanical Valves feature the classic Humphrey diaphragm-poppet principle. The unbalanced, air spring return design assures bubble-tight sealing actuated, or unactuated. Compact design permits close proximity mounting to the work and fast cycling/quick exhaust. These rugged 2- or 3-way valves are available in normally closed or normally open configurations, in standard or optional brass-body construction (for alternate media).

**Features and Benefits**
- "Bubble Tight" seal.
- Full ported 1/8” or 1/4” orifice, 1/8 or 1/4 PIPE ports.
- Fast cycling, high flow, quick exhaust.
- Reliable operation in lubricated or not lubricated air supply systems. No sliding seals.
- Hard plumb mount, or panel mount using nuts or mounting base, via the 1”-20 UNEF body mounting threads (125 series) or mounting base (250 series).
- Buna N seals standard. Fluorocarbon seals optional.

**SPECIFICATIONS FOR 125 MECHANICAL AND 250 MECHANICAL**

| Design Principle: | Pressure Unbalanced, Air Return, Spring Assist |
| Porting Type:     | 2- or 3-Way                                      |
| Port Size:        | 1/8, 1/4 PIPE                                   |
| Media:            | Air, Inert Gas, Liquid                          |
| Pressure Range:   | 0–125 PSIG                                      |
| Temperature Range:| -20°F to 225°F                                  |
| Flow @100 PSIG:   | 125: 18 CFM, 509 LPM (Cv=0.3)                  |
|                   | 250: 50 CFM, 1415 LPM (Cv=0.8)                 |
125/250 Mechanical Valves

125MC – Roller Cam

250C – Roller Cam

HOW TO OBTAIN SPECIFICATIONS FOR A PARTICULAR VALVE(S)

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