Humphrey TAC³ Electric Air Valves

Humphrey TAC³ electric air valves feature Delrin sleeve construction to reduce friction for smooth performance and long service life. Single-solenoid models employ a mechanical spring and a patented air spring to return the main stem. Double-solenoid models maintain the last position automatically, preventing equipment damage when pressure is interrupted.

TAC³ electric air valves are a series of rugged, compact, 2-position, 4-way, 5-port valves having a common inlet and separate exhausts. Cylinder port #1 is normally open; cylinder port #2 is normally closed. They have a non-locking manual override. The valve cover serves as a junction box for easy wiring and can be removed without disconnecting the wiring.

These valves mount in any position with body mounting holes or directly in-line. They can also be mounted with part #8-25A mounting bracket or on rugged, extruded aluminum TAC³ MC Series manifolds.

**42E1**
Model 42E1 is a single-solenoid, maintained-contact, air spring return valve. Furnished with lead wires protected by a grommet, which may be removed to install conduit. Alternatively, user may specify Code 39 plug-in electrical connector.

Model 42E1 is identical to 42E1 but has an external air pilot connection that permits the valving of media below 30 psig and isolates pilot air from valved medium.

**M42E1**
Model M42E1 is a version of the 42E1 valve for mounting on Humphrey MC Series manifolds.

Model M42AE1 is identical to the M42E1 but has an external air pilot connection that permits the valving of media below 30 psig and isolates pilot air from valved medium.

**42E2**
Model 42E2 is a double-solenoid, momentary-contact, maintained position valve. Unique design needs no holding relays. (Note that valve may not maintain position if supply pressure is removed.) Lead wires protected by a grommet. Remove grommet to install conduit.

When energizing AC coils longer than 30 seconds, specify Code C0 (Continuous Duty). All DC voltages are continuous duty as standard.

Model 42AE2 is identical to 42E2 but has an external air pilot connection for valving media below 30 psig and isolating pilot air from valved medium.

**M42E2**
Model M42E2 is a version of the 42E2 valve for mounting on Humphrey MC Series manifolds.

Model M42AE2 is a version of the 42AE2 valve for mounting on Humphrey MC Series manifolds.
42E1-39
Model 42E1-39 is identical to 42E1. Code 39 is a plug-in (DIN) electrical connector. Code 39 is also available for models M42E1, 42E2, and M42E2. Example: M42E2-39.

TAC$^3$ MC Manifolds
Manifolds permit centralized location of control valves, simplify plumbing, and reduce installation and maintenance costs. Valves and manifolds can be subassembled and placed in the end-product as a complete control unit, thereby saving the time and labor involved when installing valves individually.

MC Series manifolds are of rugged, one-piece extruded aluminum construction and are available two to seven stations. An MC manifold has common inlet and two common (captured) exhausts. Captured exhaust is desirable when the exhausting medium must be piped away to avoid contamination of the ambient area, as in clean rooms.

Valves mount in one of two positions by reversing the valve on the manifold.

Manifold is furnished with mounting brackets and screws, permitting four mounting options.

Specifications

**MEDIA:**
Compressed Air (Consult factory for others)

**PRESSURE RANGES:**
E1/E2: 30 to 100 psig (2.1 to 7.0 bars)
AE1/FE2: 0 to 125 psig (0 to 8.6 bars) (body), 30 to 100 psig (2.1 to 7.0 bars) (plug)

**TEMPERATURE RANGE:**
-20 to 150°F (-28.9 to 65.6°C)

**OPERATING SPEEDS:**
To 600 CPM

**MATERIALS:**
Zinc Die Cast, Aluminum, Brass, Stainless Steel, Zinc Plated Steel, Dvern, Buna N

**LUBRICATION:**
Recommended, 40 Microns Minimum

Mounting Bracket 8-25A
Z-type mounting bracket with two 7/16"-18 x ¼" screws, and two ¼"-20 x 1 screws (not shown). Provides four different mounting possibilities. Bracket and screws are zinc plated steel.

Block-Off Plate 8-38A
Suspends use of station. Use in advance to provide for future addition of valves.

Speed Control Code 73
Provides controlled exhaust flow in both modes of valve operation. Exhaust is ported into manifold and may be captured.

Electrical Specifications

<table>
<thead>
<tr>
<th>MODEL</th>
<th>VOLTAGE</th>
<th>COIL NUMBER</th>
<th>WATTS</th>
<th>AMPS</th>
<th>OHMS</th>
<th>HEAT RISE (°C)</th>
<th>ON TIME SECONDS</th>
<th>OFF TIME SECONDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>42E1</td>
<td>24 DC</td>
<td>46-8A</td>
<td>7.1</td>
<td>0.296</td>
<td>0.161</td>
<td>86</td>
<td>0.023</td>
<td>0.025</td>
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<tr>
<td></td>
<td>120 AC</td>
<td>46-4</td>
<td>6.2</td>
<td>0.296</td>
<td>0.161</td>
<td>102</td>
<td>0.009</td>
<td>0.027</td>
</tr>
</tbody>
</table>

| 42E2  | 24 DC   | 46-8A       | 7.1   | 0.296| 0.236| 86             | 0.013           | 0.022           |
|       | 120 AC  | 46-3        | 6.2   | 0.296| 0.236| 105            | 0.009           | 0.016           |

Lead Wire: # 18 AWG, 16-30 TC, 1/8", 105°C, PVC, UL & CSA.

Fill/Exhaust Times (Seconds)

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FILL</th>
<th>EXHAUST</th>
<th>FILL</th>
<th>EXHAUST</th>
<th>FILL</th>
<th>EXHAUST</th>
<th>FILL</th>
<th>EXHAUST</th>
<th>FILL</th>
<th>EXHAUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>42E1/E2</td>
<td>0.067</td>
<td>0.120</td>
<td>0.475</td>
<td>0.991</td>
<td>0.074</td>
<td>0.142</td>
<td>0.524</td>
<td>1.170</td>
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</table>
## Humphrey Electric Air Valves

**TAC3 Electric & 42LW Series**  
1/4-inch ports, 4-way

### VALVES

<table>
<thead>
<tr>
<th>Option Code</th>
<th>Mount. Base</th>
<th>Spade Terminals</th>
<th>Grommet Conduit Leads (18&quot;)</th>
<th>Flying Leads (18&quot;)</th>
<th>Grommet/Conduit Leads (2&quot;)</th>
<th>DIN Connector</th>
<th>Pilot Manual Override</th>
<th>Specify Voltage with option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>42E1</td>
<td>OS</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>SP</td>
<td>NA</td>
<td>12VDC, 24VDC 24/50/60</td>
</tr>
<tr>
<td>42AE1</td>
<td>OS</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>SP</td>
<td>NA</td>
<td>120/50/60</td>
</tr>
<tr>
<td>42E2</td>
<td>OS</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>SP</td>
<td>NA</td>
<td>240/50/60</td>
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<tr>
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<td>OS</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>SP</td>
<td>NA</td>
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<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>NA</td>
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<td>NA</td>
<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
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<td>NA</td>
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<td>NA</td>
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<td>NA</td>
<td>SP</td>
<td>SP</td>
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<td>NA</td>
<td>STD</td>
<td>NA</td>
<td>SP</td>
<td>SP</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

CD = Continuous Duty  
ID = Intermittent Duty  
*Main Valve body only.  
**Fluoroelastomer

### MANIFOLDS

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC2</td>
<td>8-25A Mounting bracket for in-line Valves and for Manifolds.</td>
</tr>
<tr>
<td>MC3</td>
<td>HS-4 DIN Connector (42 Series) for use with Code 39 Valves.</td>
</tr>
<tr>
<td>MC4</td>
<td>Code 73 Speed Control for all Prefix M Valves.</td>
</tr>
<tr>
<td>MC5</td>
<td>8-38A Block-off Plate for MC Series Manifolds.</td>
</tr>
</tbody>
</table>

MC2 = 2 Station  
MC7 = 7 station, etc.

### HOW TO ORDER

Starting with Model Number specify options in order from left to right.  

**Example:** To Order Model 42E2-LL w/VAI 24VDC CD

- 4-Way Operation, Double Solenoid (42E2)  
- 72” Flying Leads (42E2-LL)  
- With fluoroelastomer seals (42E2-LL w/VAI)  
- Voltage 24 VDC 50/60 Continuous Duty Coil (42E2-LL w/VAI 24 VDC 50/60 CD)  

Remember: Option Codes marked STD and NA are not used as part of the Model Number when ordering. N/C indicates no charge but Option Code must be included in the Model Number. OS indicates that Option must be ordered separately and is not used as part of the Model Number.

- N/C = No charge  
- NA = Not available  
- OS = Order separately, additional charge for this option  
- STD = Standard  
- SP = Specify, additional charge for this option