VACCO Industries maintains a product line of latching valves designed to meet industry’s demand for high reliability, tight leakage, and quick response capabilities.

The 1/4” high-pressure latch valve utilizes VACCO’s proven torque tube technology. The all titanium construction helps maintain its light weight. The valve is fully flight-qualified and proven.

**FEATURES**

- 2000 psi Operating Pressure
- All Titanium Construction
- Low Weight – 340g/0.75 lbm
- Integral Microswitch
- 25,000 Cycle Life

**OPERATING PARAMETERS**

- Operating Pressure Range ......................... 3000 psig
- Proof Pressure ........................................ 4500 psig
- Burst Pressure ...................................... 7500 psig
- Flow / Pressure Drop ......................... 10 psid @ 5 scfm GHe
- ........................................ 0.003 psid @ 0.002 scfm GXe
- Leakage:
  - Internal........................................ <3.0 scch GHe
  - External...................................... <1 X 10^-6 sccts GHe
- Temperature ...................................... 28°F to 122°F

- Cycle Life........................................... >25,000 Cycles
- Response Time:
  - Opening...................................... 30 msec @ 20 VDC
  - Closing....................................... 30 msec @ 20 VDC
- Optional Inlet Filter ......................... 40 microns absolute
- Dielectric Strength .... 500 VAC RMS @ 60 Hz – 1 min
- Operating Voltage ......................... 20 – 54 VDC
- Weight ........................................ <340 grams (0.75 lb)

Performance characteristics are based upon customer requirements, as such, are not representative of component capabilities or limitations.
PERFORMANCE CHARACTERISTICS

Flow vs Pressure Drop

- 2500 PSI G
- - 1000 PSI G

Flow Rate (scfm)

Pressure Drop (psid)

ELECTRICAL SCHEMATIC

OPENING COIL (INLET SIDE)

+ (RED) - (BLK)

1 2

CLOSING COIL (OUTLET SIDE)

+ (RED) - (BLK)

3 4

SWITCH (VALVE CLOSED)

NC C NO

6 5 7

CONNECTOR - PIN NO.
VACCO Industries maintains a product line of titanium latching valves designed to meet industry's demand for high reliability, tight leakage, and quick response capabilities.

The VACCO 5000 psi ¼” latch valve utilizes proven torque tube technology. The all titanium construction helps reduce weight while bolstering reliability; qualified to a minimum 13,000 life cycles while maintaining performance. The valve is fully qualified and is scheduled for flight in 2002.

**DESCRIPTION**

- 5,000 psig Operating Pressure
- 13,000 Operating Cycles
- Ti Body with CRES Interface
- Low Weight – 0.75 LB (340 Grams)
- Integral Microswitch
- 40 Micron Absolute Etched Disc Inlet Filter

**FEATURES**

- Cycle Life. > 13,000 Cycle
- Operating Temp. 14 - 140°F
- Response Time:
  - Opening: 20 msec @ 29 VDC @ 5000 psid
  - Closing: 20 msec @ 29 VDC, 5000 psid
- Opening Voltage: 24 - 32 VDC
- Power Consumption: 20 W max @ 29 VDC and 76°F
- Dielectric Strength: 500 VAC RMS @ 60 Hz–1 min

**OPERATING PARAMETERS**

- Operating Pressure: 5000 psig
- Proof Pressure: 7500 psig
- Burst Pressure: 12,500 psig
- Flow/Pressure Drop: <10 psid @ 1.06
- Leakage:
  - Internal: < 5.0 scch GHe @ 5000 psid
  - External: 1x10⁻⁶ sccs GHe @ 5000 psid
- Back Pressure Relief: 1500 ± 500 psid
PERFORMANCE CHARACTERISTICS

Flow v Pressure Drop

Flow Rate (scfm GN2)

Pressure Drop (psid)

SCHEMATIC

OPENING COIL (INLET SIDE)  CLOSING COIL (OUTLET SIDE)  SWITCH SHOWN WITH VALVE IN CLOSED POSITION

GRN  GRN/WHT  RED  RED/WHT  BLUE  WHITE  ORANGE

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VACCO INDUSTRIES, INC. • AEROSPACE PRODUCTS • 10350 VACCO STREET • SOUTH EL MONTE, CA 91733
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A Subsidiary of ESCO Technologies, Inc

07 July, 2004
VACCO Industries maintains a product line of titanium latching valves designed to meet industry’s demand for high reliability, tight leakage, and quick response capabilities.

The 3/8” high-pressure latch valve utilizes VACCO’s proven torque tube technology. The all titanium construction helps maintain its weight while the dual coils are provided for redundancy. The valve is fully flight-qualified and holds extensive heritage.

**FEATURES**

- 4500 psia Operating Pressure
- All Titanium Construction
- Low Weight – 800g/1.76 lbm
- Integral Microswitch
- 3,000 Cycle Life

**OPERATING PARAMETERS**

- Operating Pressure Range ............ 4500 psia (310 bar)
- Proof Pressure .............................. 6750 psig (465 bar)
- Burst Pressure ............................. 12000 psig (828 bar)
- Flow ........................................ 0.0099 lbm/sec of H₂O
- Pressure Drop......................... <14.5 psid (at rated flow)
- Internal Leakage .......................... 1 x 10⁻³ sccs He
- External Leakage .......................... <1 x 10⁻⁶ sccs GHe
- Weight........................................ 1.76 lbm (800 grams)

- Operating Temperature ...................... -13° to +113° F
- Response Time:
  - Opening ...................... 50 msec @ 20 VDC
  - Closing ....................... 50 msec @ 20 VDC
- Back Pressure Relief ...................... 800 to 1500 psid
- Operating Voltage .......................... 22 – 32 VDC
- Dielectric Strength ............... 500 VAC RMS @ 60 Hz – 1 min

Performance characteristics are based upon customer requirements, as such, are not representative of component capabilities or limitations.
PERFORMANCE CHARACTERISTICS

Pressure Drop vs Flow Rate Test Results

<table>
<thead>
<tr>
<th>Pressure Drop (psid)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Flow Rate (scfm GHe)

1.00 10.00 100.00

ELECTRICAL SCHEMATIC

SWITCHES SHOWN WITH VALVE IN CLOSED POSITION

Switch 1
NC C NO NC

Switch 2
NO NC C NO
DESCRIPTION

VACCO Aerospace Products maintains a product line of latching valves designed to meet industry’s demand for high reliability, tight leakage, and quick response capabilities.

The ¼” high-pressure miniature latch valve is close derivative of our qualified ¼” low pressure miniature latch valve per V1E10728-01. Originally built and tested for a NASA advanced development program, these valves provide a low cost, light weight alternative for systems with lower flow demands.

FEATURES

- 3,000 psi Operating Pressure
- CRES Interface
- Low Weight – 160 Grams (0.35 LB)
- Optional Position Indicator
- Optional Etched Disc Inlet Filter
- Kel-F Poppet
- Parent Design Fully Qualified

OPERATING PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure Range</td>
<td>3000 psig</td>
</tr>
<tr>
<td>Proof Pressure</td>
<td>4500 psig</td>
</tr>
<tr>
<td>Burst Pressure</td>
<td>7500 psig</td>
</tr>
<tr>
<td>Flow / Pressure Drop</td>
<td>8 psid @ 5 scfm GHe, 0.014 psid @ 0.002 scfm GXe</td>
</tr>
<tr>
<td>Leakage: Internal</td>
<td>&lt;3.0 scch GN₂</td>
</tr>
<tr>
<td>Leakage: External</td>
<td>&lt;1 x 10⁻⁶ sccs Ghe</td>
</tr>
<tr>
<td>Temperature</td>
<td>10° to +170°F</td>
</tr>
<tr>
<td>Cycle Life</td>
<td>&gt;20,000 Cycles</td>
</tr>
</tbody>
</table>

Response Time:
- Opening: 15 msec @ 20 VDC
- Closing: 15 msec @ 20 VDC

Optional Inlet Filter: 40 microns absolute

Dielectric Strength: 500 VAC RMS @ 60 Hz—1 min

Operating Voltage: 21-38.6 VDC

Pull-In Voltage: 20 VDC Max @ 450 psi & 120°F

Power: 28 Watts Max @ 20 VDC & 70°F

Weight: 160 grams

*Performance characteristics are based upon customer requirements, as such, are not representative of component capabilities or limitations*
PERFORMANCE CHARACTERISTICS

Flow vs Pressure Drop @ 3000 psi

ELECTRIC SCHEMATIC

ELECTRICAL SCHEMATIC

OPENING COIL
BLACK + RED -

CLOSING COIL
BLACK + RED -