VACCO Industries’ family of pneumatic couplings provides the precision operations required for space applications under extreme high pressure conditions.

**DESCRIPTION**

VACCO Industries’ family of pneumatic couplings provides the precision operations required for space applications under extreme high pressure conditions.

**FEATURES**

- Size: 1/4” to 8”
- Fluids: LN₂, LO₂, and LH₂
- Actuation: Manual, Pneumatic, Automatic (carrier plate mounted)
- Leakage: Down to 10E-03 sccs GHe
- Alignment: > ± 1/8” Parallel Offset
- Temperature: -423°F to +350°F
- Life Cycle: >4000 cycles

**APPLICATIONS**

- Fuel Cell Fill and Drain System
- Propulsion Fill and Drain System
- Cryogenic Venting System
- Power Reactant Storage Distribution System

**HERITAGE**

- Apollo
- Optical Aircraft Experiment
- Shuttle-Centaur

**PERFORMANCE CHARACTERISTICS**

VACCO INDUSTRIES • SPACE PRODUCTS • 10350 VACCO STREET • SOUTH EL MONTE, CA 91733
TEL: (626) 443-7121 • FAX: (626) 442-6943 • WEB: www.vacco.com • E-MAIL: space@vacco.com

A Subsidiary of ESCO Technologies, Inc

07/July, 2004
<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Ground Servicing</th>
<th>Type</th>
<th>Weight, Flight</th>
<th>Operating Fluid</th>
<th>Operating Temperature</th>
<th>Operating Pressure</th>
<th>Leakage</th>
<th>Capped</th>
<th>Self-Alignment</th>
<th>Flow</th>
<th>Characteristics</th>
<th>Features</th>
<th>Actuation</th>
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</thead>
<tbody>
<tr>
<td>Shuttle/Centaur</td>
<td>1/2&quot;</td>
<td>Breakaway or Manual Latch</td>
<td>1.02 lbs total</td>
<td>GHe, N₂, CO₂, CH₂, LO₂, LH₂</td>
<td>-423° to +150°F</td>
<td>0 to 85 psig</td>
<td>2 sccs GHe</td>
<td>2 sccs GHe</td>
<td>.06&quot; Offset</td>
<td>4000</td>
<td>K=4.0</td>
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<tr>
<td>PRS</td>
<td>1/2&quot;</td>
<td>Ground Servicing</td>
<td>1.02 lbs total</td>
<td>GHe, N₂, CO₂, CH₂, LO₂, LH₂</td>
<td>-423° to +150°F</td>
<td>0 to 85 psig</td>
<td>2 sccs GHe</td>
<td>2 sccs GHe</td>
<td>.06&quot; Offset</td>
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<tr>
<td>MPS</td>
<td>Interstage</td>
<td>Breakaway</td>
<td>2.0 lbs total</td>
<td>O₂, N₂, LO₂, LH₂</td>
<td>-32° to +125°F</td>
<td>0 to 100 psig</td>
<td>10 sccm GHe</td>
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<td>OAMP</td>
<td>Interstage</td>
<td>Breakaway</td>
<td>2.0 lbs total</td>
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<td>Apollo Spacecraft</td>
<td>Interstage</td>
<td>Breakaway</td>
<td>1.19 lbs total</td>
<td>LO₂, LH₂</td>
<td>LO₂, LH₂</td>
<td>-423° to +160°F</td>
<td>Vacuum to 1275 psig</td>
<td>1.5x10⁻⁶ sccs GHe</td>
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<td>N/A</td>
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<td>Ground Servicing</td>
<td>Manual Latching</td>
<td>1.3 lbs</td>
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<td>LO₂, LH₂</td>
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<td>1.5x10⁻⁶ sccs GHe</td>
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