MULTI-PORT MONOBLOCK VALVE
HMB & 2BE SERIES

HAM-LET®
ADVANCED CONTROL TECHNOLOGY
### MATERIALS OF CONSTRUCTION - WETTED PARTS

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Parts</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>SS316L Var or Vm/Van (1)</td>
</tr>
<tr>
<td>2</td>
<td>Seat Holder</td>
<td>SS316L Var or Vm/Van (1)</td>
</tr>
<tr>
<td>3</td>
<td>Seat</td>
<td>PCTFE, *Polyimide</td>
</tr>
<tr>
<td>4</td>
<td>Diaphragm</td>
<td>Co-Cr-Ni Alloy</td>
</tr>
</tbody>
</table>

* Optional

### UCV - HM SPECIFICATIONS

**Structure**
- Direct-seal metal-diaphragm valve without seal packing manually and pneumatically operated

**Item Pressure**
- Vacuum to 150 psi (10 bar)/300 psi (20 bar)

**Operating Temperature**
- Standard: 14 to 140°F, -10 to 60°C (PCTFE Seat)
- Available: 14 to 302°F, -10 to 150°C (*Polyimide Seat)

**Leakage**
- Inboard Leakage: ≤ 3x10⁻⁹ atm cc He/sec
- Outboard Leakage: ≤ 1x10⁻⁹ atm cc He/sec
- Across the Seat Leakage: ≤ 1x10⁻⁹ atm cc He/sec

**Particle**
- No particle detected above 0.1 µm.

**Connections**
- Face seal or tube weld

**CV Value**
- 0.3

**Surface Finish Ra (Ave)**
- Standard: 5 µin

**Air Connection (Pneumatic)**
- 1/8” NPT

**Actuator Air Supply (Pneumatic)**
- 60 to 90 psig (4 to 6 bar)

*Used with Fluorocarbon FKM O-ring

### THREE STAGES FOR ORDERING MONOBLOCK VALVES

**STAGE A FLOW PATTERN**

#### HMB1

#### HMB2

V1, V2 are the inside valves

A, B, C are valves port sides

“IN” - defined as a port connected to the region below the valve seat.

“OUT” - defined as a port connected to the region above the valve seat.

*(1) Per SEMI F20-0305

**Warning!**

The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

**PANEL MOUNTING - STANDARD**

Standard, eight threaded holes (M5).
### Stage B: Actuation Device

<table>
<thead>
<tr>
<th>Actuation Type</th>
<th>Actuation Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td></td>
<td>Air Operated Normally Closed</td>
</tr>
<tr>
<td>Manual</td>
<td>LQ</td>
<td>Ovel Handle 1/4 turn</td>
</tr>
<tr>
<td>Manual</td>
<td>LR</td>
<td>Round Handle 3/4 turn</td>
</tr>
</tbody>
</table>

### Stage C: End Connections and Dimensions

<table>
<thead>
<tr>
<th>Connection Type</th>
<th>Size</th>
<th>End Connection</th>
<th>X (in mm)</th>
<th>Y (in mm)</th>
<th>Z (in mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butt Weld</td>
<td>1/4&quot;</td>
<td>BW4</td>
<td>1.64</td>
<td>1.56</td>
<td>1.64</td>
</tr>
<tr>
<td>Swivel Female Face-Seal</td>
<td>1/4&quot;</td>
<td>GF4</td>
<td>2.03</td>
<td>2.66</td>
<td>2.03</td>
</tr>
<tr>
<td>Swivel Male Face-Seal</td>
<td>1/4&quot;</td>
<td>GM4</td>
<td>2.39</td>
<td>3.35</td>
<td>2.39</td>
</tr>
</tbody>
</table>

Dimensions are for standard monoblock valves. For special customer dimensions, please consult HAM-LET.

Dimensions are for reference only, and are subject to change.

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Bottom view - Panel mounting

Front view

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**Surface finish Ra (Ave)**
Standard 5 µin

**Air Connection (Pneumatic)**
1/8" NPT

**Actuator Air Supply (Pneumatic)**
60 to 90 psig (4 to 6 bar)

*Used with Fluorocarbon FKM O-ring

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*Can also be used for reversed flow

(1) Per SEMI F20-0305

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**DIAPHRAGM MONOBLOCK VALVE HMB21 SERIES**

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**PANEL MOUNTING - STANDARD**
Standard, eight threaded holes (M5).
ORDERING INFORMATION

Stage

Valve Description
Example:

Valve Series
HMB - UCV Monoblock Valves

Flow Pattern
1
2
21

Body Size
4 - 1/4

Body Raw Material
V - SS316L Var or Vim/Var(1)

Seat Material
K - PCTFE
S* - Polyimide
K Standard, *Available

End Connection
BW - Butt Weld
GF - Swivel Female Face Seal
GM - Swivel Male Face Seal

Features
ISLT - Manual LOTO Device
PX - Proximity

End Size
4 - 1/4
8 - 1/2
Other End Connection sizes are available.

MATERIALS OF CONSTRUCTION - WETTED PARTS

<table>
<thead>
<tr>
<th>Flow Pattern - Stage A</th>
<th>Flow Pattern - 1</th>
<th>Flow Pattern - 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Size</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>Body Material</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Seat Material</td>
<td>C</td>
<td>LQ</td>
</tr>
<tr>
<td>Actuation device - Stage B</td>
<td>Valve V1 - Air Operated, Normally Closed</td>
<td>Valve V1 - Oval Handle 1/4 turn</td>
</tr>
<tr>
<td>End connection - Stage C</td>
<td>BW Port A - Butt Weld</td>
<td>GF Port A - Swivel Female Face Seal</td>
</tr>
<tr>
<td>End Size</td>
<td>4</td>
<td>1/4</td>
</tr>
</tbody>
</table>

(1) Per SEMI F20-0305

* If the end connections are the same, use the end connection description only once.
DIAPHRAGM MONOBLOCK VALVE 2BE SERIES

Metal Diaphragm Valves
Standard models from the Ultra Clean Valve Series made according to UHP specifications.
These models come with a connection joint size of 1/4" as a standard.
The seat structure offers superb leak performance for enhanced reliability.

PART NUMBER / DIMENSIONS

<table>
<thead>
<tr>
<th>Part Number/ep</th>
<th>Size</th>
<th>End Connection</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>2BEV4R-MV</td>
<td>1/4</td>
<td>Male HTC®</td>
<td>62.5</td>
<td>62.5</td>
<td>62.5</td>
<td>45</td>
<td>11</td>
<td>(53.5)</td>
<td>12</td>
<td>40</td>
<td>(53.5)</td>
<td>40</td>
<td>12</td>
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<td>Male HTC®</td>
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<td>40</td>
<td>(53.5)</td>
<td>40</td>
<td>12</td>
</tr>
<tr>
<td>2BEH4R-FV</td>
<td>1/4</td>
<td>Female HTC®</td>
<td>57.5</td>
<td>57.5</td>
<td>57.5</td>
<td>35</td>
<td>11</td>
<td>(50)</td>
<td>12</td>
<td>40</td>
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</tr>
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<td>2BEV4C-FV</td>
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<td>12</td>
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SPECIFICATIONS

<table>
<thead>
<tr>
<th>Size</th>
<th>Pressure</th>
<th>Temp.</th>
<th>Cv</th>
<th>Leak Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inboard</td>
</tr>
<tr>
<td>E 1/4</td>
<td>1MPa</td>
<td>-10 60°C</td>
<td>0.1</td>
<td>3 X 10^-12</td>
</tr>
<tr>
<td>D 3/8</td>
<td>16.2MPa</td>
<td></td>
<td>0.3</td>
<td>3 X 10^-10</td>
</tr>
<tr>
<td>H 1/2</td>
<td></td>
<td></td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

STRUCTURE

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<tr>
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<th>Parts</th>
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<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>2</td>
<td>Seat</td>
<td>PCTFE</td>
</tr>
<tr>
<td>3</td>
<td>Seat Holder</td>
<td>316L Stainless Steel</td>
</tr>
<tr>
<td>4</td>
<td>Diaphragm</td>
<td>Ni-Co Alloy</td>
</tr>
<tr>
<td>5</td>
<td>Handle/Act</td>
<td>Aluminum</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION

2BH V 4 C MV

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

UCV HMB, Rev.05, January 2014