Ultra High Purity Valves

CMD Series
LOW PRESSURE, HIGH PERFORMANCE VALVES
The Carten® CMD series is a range of low pressure high performance compact diaphragm valves designed for high demanding applications in semiconductor manufacturing processes. The CMD series offers exceptional quality and value for the increasing challenges in ultra high purity gas delivery systems. Product features include the direct diaphragm design that offers exceptional sealing performance, reliability and safety with minimal particle generation and dead-space free.

The CMD series can be specified in a variety of configurations, and with a range of options or accessories, to support a wide range of semiconductor fab equipment requirements. The high performance capabilities makes the CMD range a natural selection for Valve Manifold Boxes (VMB’s), Valve Manifold Panels (VMP’s), Hook-Up, Tool Install and Stick Assembly applications. The CMD range is suitable for all inert gases and most toxic gases.

Configurations and Options

The versatile CMD range can be specified in many configurations and with a variety of different options or accessories, including:

- PCTFE or PTFE seat materials
- Inner surface treatments
- Block valve
- Limit switch
- Lock-out tags
- Hastelloy C-22 bodies
- High-pressure certification
- Proximity sensor
- Various handle colours
### CMD Low Pressure Specifications

<table>
<thead>
<tr>
<th>Series</th>
<th>Size</th>
<th>Operating Pressure</th>
<th>Standard Operating Temperature</th>
<th>Operating Mode</th>
<th>Cv Value</th>
<th>Durability Test</th>
<th>Body Material</th>
<th>Diaaphragm Material</th>
<th>Seat Material</th>
<th>Surface Finish</th>
<th>Seat Leak Rate</th>
<th>External Leak Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD250</td>
<td>1/4&quot;</td>
<td>250 PSI</td>
<td>10-80 °C</td>
<td>Manual</td>
<td>0.30</td>
<td>20,000 cycles at 316L SS</td>
<td>316L SS</td>
<td>Nickel-Coal Alloy</td>
<td>PCTFE</td>
<td>10Ra EP</td>
<td>1 x 10^-9 atm cm^3/sec</td>
<td>1 x 10^-9 atm cm^3/sec</td>
</tr>
<tr>
<td>CMD250</td>
<td>3/8&quot;</td>
<td>250 PSI</td>
<td>10-80 °C</td>
<td>Multi-Turn</td>
<td>0.60</td>
<td>4,000,000 cycles at 316L SS</td>
<td>316L SS</td>
<td>Nickel-Coal Alloy</td>
<td>PCTFE</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
</tr>
<tr>
<td>CMD250</td>
<td>3/4&quot;</td>
<td>250 PSI</td>
<td>10-80 °C</td>
<td>Pneumatic</td>
<td>0.30</td>
<td>20,000 cycles at 316L SS</td>
<td>316L SS</td>
<td>Nickel-Coal Alloy</td>
<td>PCTFE</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
</tr>
<tr>
<td>CMD250</td>
<td>1&quot;</td>
<td>250 PSI</td>
<td>10-80 °C</td>
<td>Manual</td>
<td>0.60</td>
<td>4,000,000 cycles at 316L SS</td>
<td>316L SS</td>
<td>Nickel-Coal Alloy</td>
<td>PCTFE</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
</tr>
<tr>
<td>CMD250</td>
<td>1 1/2&quot;</td>
<td>250 PSI</td>
<td>10-80 °C</td>
<td>Quarter-Turn</td>
<td>0.30</td>
<td>20,000 cycles at 316L SS</td>
<td>316L SS</td>
<td>Nickel-Coal Alloy</td>
<td>PCTFE</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
<td>10Ra EP</td>
</tr>
</tbody>
</table>

*Optional Material in Double Melt 316L SS ST, SS.
**Optional Seat Materials: Polyamide (150°C) and PFA (150°C).

### Carten Valve Descriptions

#### Carten Series

<table>
<thead>
<tr>
<th>Carten Series</th>
<th>Port Type</th>
<th>Size</th>
<th>Inlet Connection</th>
<th>Outlet Connection</th>
<th>Actuator Designator</th>
<th>Actuator Accessories</th>
<th>Surface Finish Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMD (Manual Multi-Turn)</td>
<td>S</td>
<td>250</td>
<td>1/4&quot; TE = 035</td>
<td>1/4&quot; FGM</td>
<td>PC1</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
<tr>
<td>CMD (Pneumatic Actuation)</td>
<td>CR</td>
<td>375</td>
<td>1/2&quot; TE = 043</td>
<td>1/4&quot; FGM</td>
<td>PC2</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
<tr>
<td>CMDQ (Quarter Turn)</td>
<td>TB</td>
<td>500</td>
<td>1/2&quot; TE = 049</td>
<td>1/4&quot; FGM</td>
<td>PC3</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
<tr>
<td>CMDQ (Quarter Turn)</td>
<td>TL</td>
<td>1/2&quot;</td>
<td>1/2&quot; FGM</td>
<td>1/4&quot; FGM</td>
<td>PC4</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
<tr>
<td>CMDQ (Quarter Turn)</td>
<td>XR</td>
<td>1/2&quot;</td>
<td>1/2&quot; FGM</td>
<td>1/4&quot; FGM</td>
<td>PC5</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
<tr>
<td>CMDQ (Quarter Turn)</td>
<td>XO</td>
<td>1/2&quot;</td>
<td>1/2&quot; FGM</td>
<td>1/4&quot; FGM</td>
<td>PC6</td>
<td>EPS</td>
<td>10R EP (St.)</td>
</tr>
</tbody>
</table>

* FSM is Carten’s Face Seal Material connection. FSM is compatible with the VCR® brand.
** EPS refers to an Explosion Proof Proximity Sensor. See customer drawings for specific EPS details."
IRELAND
Carten Controls Ltd
Unit 609 Waterford Industrial Park
Waterford, Ireland
Tel: + 353-51-355436
Fax: + 353-51-378054
Email: sales@cartencontrols.com
Web: www.cartencontrols.com

USA
Carten Controls
604 West Johnson Avenue
Cheshire, CT. 06410
USA
Tel: +1 203-699-2100
Fax: +1 203-699-2179
Email: sales@cartenUS.com
Web: www.cartenUS.com

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