Sample Cylinders

Chemtron make sampling cylinders are specially designed and tested for application specific for sample streams. Since we are in the business of providing calibration reference mixtures we understand the importance of sample gas/liquid stability of the sample.

The sampling cylinders are conditioned specifically as per application so that the gases don’t react with the cylinder walls and wetted parts. Lot of samplers manufacture doesn’t realize the importance of this. Stainless steel i.e. SS316 or SS316 L is the most preferred MOC of almost all sampling systems. It has good corrosion resistant property and works for NACE environments as well.

The sampling cylinders are fitted with CHEMTRON make needle valves which offer 10 -7 leak integrity (Tested for Helium leak test for Ultra leak tightness). Below are the various types of sampling cylinder that we offer along with its features and specifications.

Features:
1. Completely indigenous hence very economical.
2. Specially conditioned for sample requirements.
3. Low cost as compared to expensive imports and faster delivery’s
4. Internally passivized cylinders available as per request (Teflon Lining).
5. Custom cylinders can be provided as it is made completely in house.

Common Specifications:
1. Available in MOC SS 304 / 316 / 316 L. * We make the sample cylinders for other alloys as per requirement
2. Internal Water capacity from 100 ml to 2 liters

<table>
<thead>
<tr>
<th>Part No</th>
<th>MOC</th>
<th>Description</th>
<th>End Connection</th>
<th>Pressure Rating (Bars)</th>
<th>Operating Pressure (Bars)</th>
<th>Length approx. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMP-100-2</td>
<td>SS316/316L</td>
<td>Sampling Cylinder 100 ml (CC)</td>
<td>1/4&quot;</td>
<td>10 to 200</td>
<td>10,50,150,200</td>
<td>210</td>
</tr>
<tr>
<td>SMP-250-2</td>
<td>SS316/316L</td>
<td>Sampling Cylinder 250 ml (CC)</td>
<td>1/4&quot;</td>
<td>10 to 200</td>
<td>10,50,150,200</td>
<td>250</td>
</tr>
<tr>
<td>SMP-500-2</td>
<td>SS316/316L</td>
<td>Sampling Cylinder 500 ml (CC)</td>
<td>1/4*,1/2&quot;</td>
<td>10 to 200</td>
<td>10,50,150,200</td>
<td>310</td>
</tr>
<tr>
<td>SMP-1000-2</td>
<td>SS316/316L</td>
<td>Sampling Cylinder 1000 ml (CC)</td>
<td>1/4*,1/2&quot;</td>
<td>10 to 200</td>
<td>10,50,150,200</td>
<td>380</td>
</tr>
<tr>
<td>SMP-2000-2</td>
<td>SS316/316L</td>
<td>Sampling Cylinder 2000 ml (CC)</td>
<td>1/4*,1/2&quot;</td>
<td>10 to 200</td>
<td>10,50,150,200</td>
<td>410</td>
</tr>
</tbody>
</table>

CSL's Sample Bomb Assembly for Sampling System

**Precision Control Needle Valves**

Below is the list of needle valves typically used along with sampling cylinder.

a. Specifications:

<table>
<thead>
<tr>
<th>Part No</th>
<th>MOC</th>
<th>Description</th>
<th>End Connection</th>
<th>Pressure Rating (Bars)</th>
<th>Seat</th>
</tr>
</thead>
</table>
Flexible-Braided Hoses.

CHEMTRON offer flexible hoses which are attached to samplers for ease of operation. We recommend Teflon line double braided flexible hoses for almost all applications. The hose are available in various sizes typically ¼ and ½ are standards used in industry. The various specifications of hoses are mentioned below.

a. Common Specifications:
   a. Teflon/SS 316/Other Alloys(as per requirement) Lined double wire braided.
   b. Typical length of 1 meter.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>ID Size (in.)</th>
<th>Max. Oper. Pressure (PSI)</th>
<th>Max. Test Pressure (PSI)</th>
<th>Min. Burst Pressure (PSI)</th>
<th>Static Bend Radius (in.)</th>
<th>Dynamic Bend Radius (in.)</th>
<th>Outside Diameter (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLH-6.0-1M</td>
<td>1/4</td>
<td>3250</td>
<td>4875</td>
<td>13,000</td>
<td>3</td>
<td>6</td>
<td>0.62</td>
</tr>
<tr>
<td>FLH-9.5-1M</td>
<td>3/8</td>
<td>1450</td>
<td>2175</td>
<td>5800</td>
<td>1.15</td>
<td>6</td>
<td>0.7</td>
</tr>
<tr>
<td>FLH-12.7-1M</td>
<td>1/2</td>
<td>1375</td>
<td>2063</td>
<td>5500</td>
<td>1.75</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>FLH-19.0-1M</td>
<td>3/4</td>
<td>725</td>
<td>1088</td>
<td>3500</td>
<td>2.1</td>
<td>7</td>
<td>1.15</td>
</tr>
<tr>
<td>FLH-25.4-1M</td>
<td>1</td>
<td>580</td>
<td>870</td>
<td>2400</td>
<td>2.5</td>
<td>7.7</td>
<td>1.49</td>
</tr>
</tbody>
</table>

End connections would be as per requirement by the client. Below shown are just for indications.

Flexible Braided Hoses for Gas and Liquid services

Quick Connects or Quick Couplers

We also provide quick connects which are used along with close loop sampling systems. The sampling cylinders are disconnected using quick couplers on both sides. The Unloading station is designed to connect the sampling cylinder to analytical instruments in the lab like gas chromatographs, HPLC and many more.. The unloading system has provision of sample purge and inert gas flushing which maintains the integrity of the sample and dose not allow contamination of the sample.
Features:
1. Completely indigenous hence very economical.
2. Sample pressure, temperature measurement (Optional)
3. Sample Purge and Inert Gas Purge
4. Sample Isolation if disconnected

These quick couplings can be configured for any sampling cylinder.
### Specifications:

<table>
<thead>
<tr>
<th>Part No</th>
<th>MOC</th>
<th>Short Name</th>
<th>Description</th>
<th>End Connection</th>
<th>Pressure Rating (Bars)</th>
<th>Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>QCR-6-BD</td>
<td>SS316/31 6 L</td>
<td>QCBDY</td>
<td>1/4&quot; Quick Connect Body: These Used in sampling system to offer quick connects and disconnect in sample stream. The Body part consists of in built NRV with options of various SEAT polymers. The coupler consist of all SS balls which are quoted for anti-corrosion and are complete SS.</td>
<td>Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1</td>
<td>40 bars standard can go up to 200 bars</td>
<td>Viton/Teflon/ Buna N or Metal to Metal</td>
</tr>
<tr>
<td>QCR-6-ST</td>
<td>SS316/31 6 L</td>
<td>QCSTM</td>
<td>1/4&quot; Quick Connect Stem: These Used in sampling system to offer quick connects and disconnect in sample stream. The Stem mates with body part and offer complete spring tension seal which also consist of in built NRV with options of various SEAT polymers. The Stem coupler consists of all double seal spring loaded NRV which activates only when mated with body.</td>
<td>Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1</td>
<td>40 bars standard can go up to 200 bars</td>
<td>Viton/Teflon/ Buna N or Metal to Metal</td>
</tr>
<tr>
<td>QCR+12-BD</td>
<td>SS316/31 6 L</td>
<td>QCBDY</td>
<td>1/2&quot; Quick Connect Body: These Used in sampling system to offer quick connects and disconnect in sample stream. The Body part consists of in built NRV with options of various SEAT polymers. The coupler consist of all SS balls which are quoted for anti-corrosion and are complete SS.</td>
<td>Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1</td>
<td>40 bars standard can go up to 200 bars</td>
<td>Viton/Teflon/ Buna N or Metal to Metal</td>
</tr>
<tr>
<td>QCR+12-ST</td>
<td>SS316/316L</td>
<td>QCSTM</td>
<td>1/2&quot; Quick Connect Stem: These used in sampling system to offer quick connects and disconnect in sample stream. The Stem mates with body part and offer complete spring tension seal which also consist of in built NRV with options of various SEAT polymers. The Stem coupler consists of all double seal spring loaded NRV which activates only when mated with body.</td>
<td>Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1</td>
<td>40 bars standard can go up to 200 bars</td>
<td>Viton/Teflon/ Buna N or Metal to Metal</td>
</tr>
</tbody>
</table>
Close Loop Sampling Systems

Close loop sampling systems are integrated system consisting of sampling bombs and related accessories which are used to sample process gases/Liquids on the plant. The sampling panel is attached to process lines and only gas sampling bombs is removable via quick connects and hoses. The system also has provisions of sample coolers thermocouple thermo wells and pressure indications if required. These are required typically when continuous sampling is done in the plant. Also it offers ease of use and protection against hazardous fluid.

Features:
1. Completely indigenous hence very economical.
2. Can be custom designed as per process parameters.
3. Low cost as compared to expensive imports and faster delivery’s
4. Complete SS enclosure to avoid spillage and ease of use.
5. Custom cylinders can be provided as it is made completely in house.

Common Specifications:
3. Available in MOC SS 304 / 316 / 316 L
4. Internal Water capacity from 100 ml to 2 liters

Different Types as per application:

1. Type A for Gaseous phase pressures up to 200 bars
   a. Refinery Gases
   b. Natural Gas sampling
2. Type B for Liquids: Volatile and Hazardous and Toxic
   a. Liquefied petroleum gases and liquids
3. Type C for Liquids: Non Volatile and Non Hazardous and Non Toxic
   a. Liquefied petroleum gases and liquids.
4. Type D for Low Pressure gas using Teflon line plastic bags
   a. Process gases were the pressure is few mm water columns.
5. Type E Sample coolers for heat exchange circuits before sampling.
6. Custom Sampling systems for basic industrial use.
   a. Pure gas sampling eg: CO2 Gas sampling, H2, Ar, N2 etc..
7. Other Types as per industry standards.
   a. Dual Phase Sample System
   b. Fixed Volume Sample Systems
   c. Flare Gas Sample System
   d. HF/HCL and similar acidic service Systems
8. Custom Gas Enclosure for all the above system for protection and IP55 applications.
Sample Connections for Aromatic Hydrocarbons, Hydrogen, Corrosive Services and Steam

Unloading Stations for Sampling Systems:

Close loop sampling systems are present all over the plant sites. The sampling cylinders are disconnected using quick couplers on both sides. The Unloading station is designed to connect the sampling cylinder to analytical instruments in the lab like Gas Chromatographs, HPLC etc.. The unloading system has provision of
sample purge and inert gas flushing which maintains the integrity of the sample and does not allow contamination of the sample.

Features:
5. Completely indigenous hence very economical.
6. Sample pressure, temperature measurement (Optional)
7. Sample Purge and Inert Gas Purge
8. Sample Isolation if disconnected
9. Can be configured for any sampling cylinder make.

Common Specifications:
1. Available in MOC SS 304 / 316 / 316 L
2. Internal Dead volume < 10 ml
3. Isolation Valves for Sample Purge and inert gas flush line.

<table>
<thead>
<tr>
<th>Part No</th>
<th>MOC</th>
<th>Description</th>
<th>End Connection</th>
<th>Inlet connection</th>
<th>Operating Pressure (Bars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULS-4-P</td>
<td>SS316</td>
<td>Unloading Station 4 port with Pressure Gauge</td>
<td>1/4&quot; for Purge Line</td>
<td>¼&quot; O.D compression or Quick Connect Female (Stem)</td>
<td>Up to 200 Bars</td>
</tr>
</tbody>
</table>

Sample unloading station