

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

Part No	*MOC	Description	End Connection	Pressure Rating (Bars)	Operating Pressure (Bars)	Length approx. (mm)
SMP-100-2	SS316/316L	Sampling Cylinder 100 ml (CC)	1/4"	10 to 200	10,50,150,200	210
SMP-250-2	SS316/316L	Sampling Cylinder 250 ml (CC)	1/4"	10 to 200	10,50,150,200	250
SMP-500-2	SS316/316L	Sampling Cylinder 500 ml (CC)	1/4", 1/2"	10 to 200	10,50,150,200	310
SMP-1000-2	SS316/316L	Sampling Cylinder 1000 ml (CC)	1/4", 1/2"	10 to 200	10,50,150,200	380
SMP-2000-2	SS316/316L	Sampling Cylinder 2000 ml (CC)	1/4", 1/2"	10 to 200	10,50,150,200	410

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:

Part No	MOC	Description	End Connection	Pressure Rating (Bars)	Seat

NDV-6-0	SS316/316 L or Other Alloys, as per requirement	1/4" Needle Valve: These valves are flow control needle with variable flow from as low as 20 ml/min to 20 L/min. The valves offer leak integrity of 10^{-7} cc/sec and are tested and validated using helium leak test method. The wide range of seats available depending upon temp and process parameters.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	200 bars standard can go up to 400 bars	Viton/Teflon/ Buna N or Metal to Metal
NDV-12-0	SS316/316 L or Other Alloys, as per requirement	1/2" Needle Valve: These valves are flow control needle with variable flow from as low as 100 ml/min to 200 L/min. The valves offer leak integrity of 10^{-7} cc/sec and are tested and validated using helium leak test method. The wide range of seats available depending upon temp and process parameters.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	200 bars standard can go up to 400 bars	Viton/Teflon/ Buna N or Metal to Metal

CSL's Sample Cylinders with Needle Valve

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.

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

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.

a. Specifications:

Part No	MOC	Short Name	Description	End Connection	Pressure Rating (Bars)	Seat
QCR-6-BD	SS316/316 L	QCBDY	1/4" 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.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	40 bars standard can go up to 200 bars	Viton/Teflon/ Buna N or Metal to Metal
QCR-6-ST	SS316/316 L	QCSTM	1/4" 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.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	40 bars standard can go up to 200 bars	Viton/Teflon/ Buna N or Metal to Metal
QCR+12-BD	SS316/316 L	QCBDY	1/2" 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.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	40 bars standard can go up to 200 bars	Viton/Teflon/ Buna N or Metal to Metal

QCR+12-ST	SS316/316 L	QCSTM	1/2" 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.	Male/Female NPT or Compression ferrule fitting or ANSI/ASME B1.20.1	40 bars standard can go up to 200 bars	Viton/Teflon/ Buna N or Metal to Metal
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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:

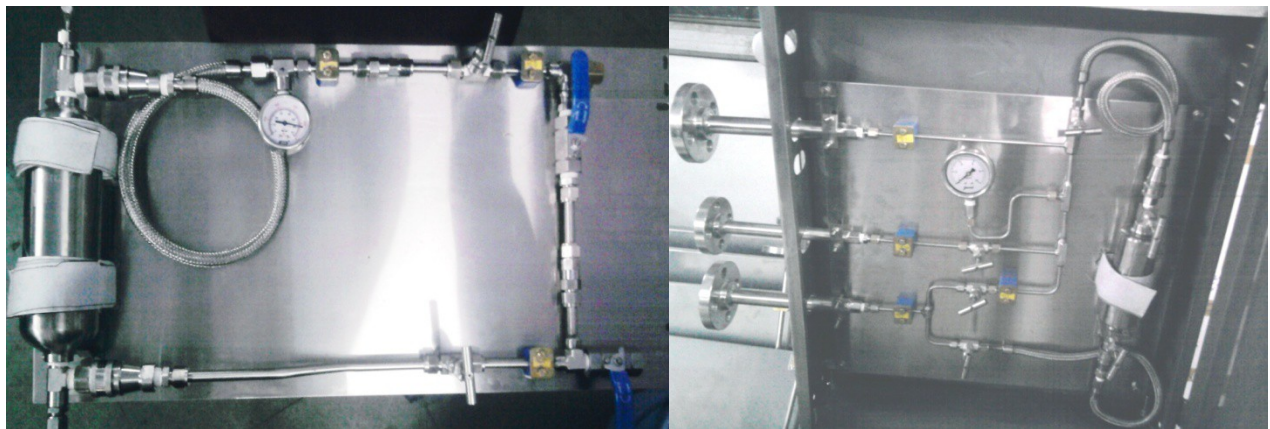
1. Completely indigenous hence very economical.
2. Can be custom designed as per process parameters.
3. Low cost as compared to expensive imports and faster delivery's
4. Complete SS enclosure to avoid spillage and ease of use.
5. Custom cylinders can be provided as it is made completely in house.

Common Specifications:

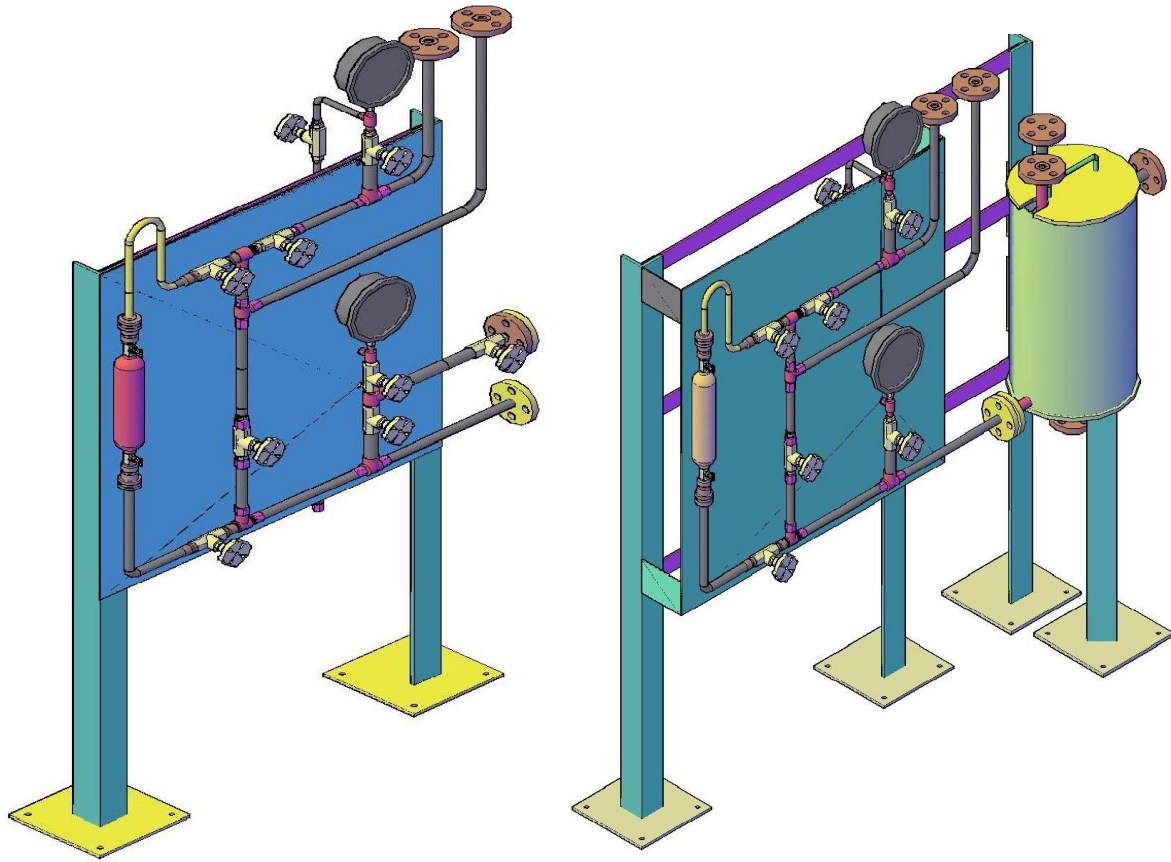
3. Available in MOC SS 304 / 316 / 316 L
4. Internal Water capacity from 100 ml to 2 liters

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 where 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.



Closed Loop Sampling System for Gases and Liquids



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 dose no allow contamination of the sample.

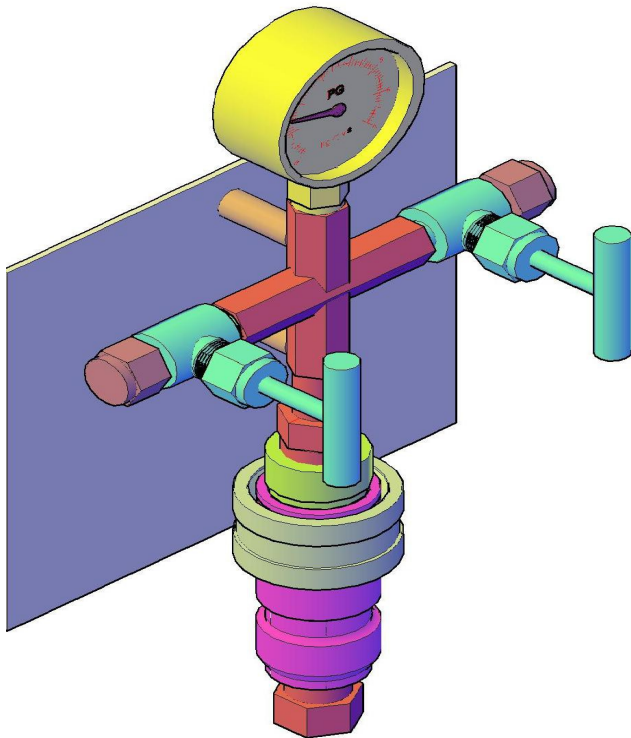
Features:

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.

Part No	MOC	Description	End Connection	Inlet connection	Operating Pressure (Bars)
ULS-4-P	SS316	Unloading Station 4 port with Pressure Gauge	1/4" for Purge Line	1/4" O.D compression or Quick Connect Female (Stem)	Up to 200 Bars



Sample unloading station