

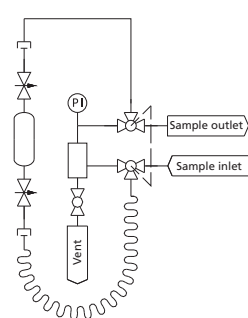
# CS - Cylinder Configuration Sampling Systems for Liquefied Gases

## CSF1 - System Purge Type with Expansion Chamber

### Features

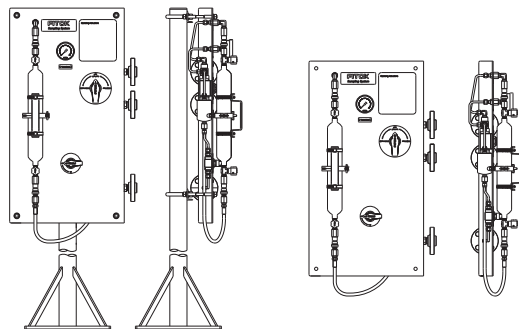
- Sampling from devices or process lines
- System purge
- Predefined sampling volume controlled by an expansion chamber to ensure safe sampling
- Easy operation with a single handle by linkage valve

### Basic Configuration

Wetted Material	316 SS	
Cylinder Assembly	500 ml cylinder ND Series needle valves QC4 Series quick-connects	
Sampling Valve	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
Expansion Chamber	100ml, to control the predefined sampling volume to 80% of the cylinder volume	
Other Accessories	PS Series metal hoses Pressure gauge	
Connections	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

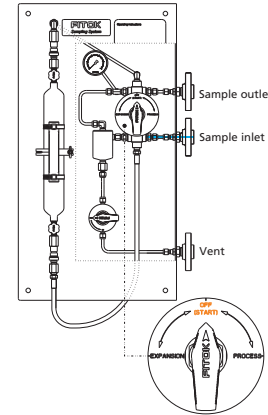
### Typical Installation Mode



### Operation

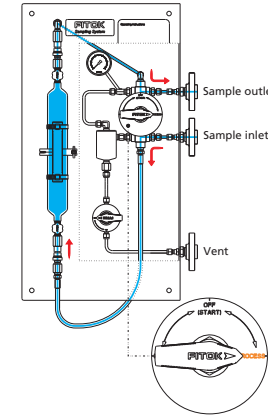
#### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



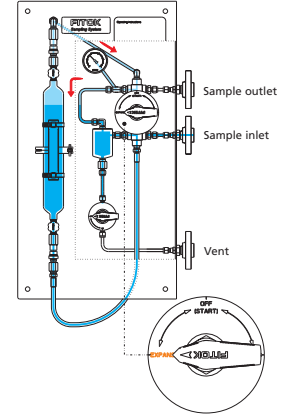
#### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the cylinder. Hold for a period of time to ensure representative sampling.



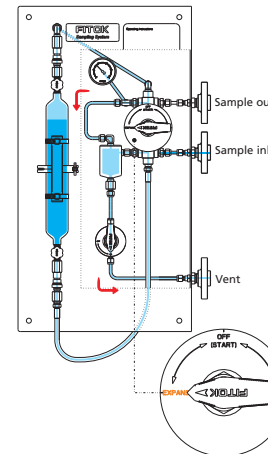
#### 3 - Expansion

Turn the handle to the "EXPANSION" position, connecting the cylinder with the expansion chamber. Hold for a period of time to transfer a portion of sample to the expansion chamber. Close the needle valves at both ends of the cylinder.



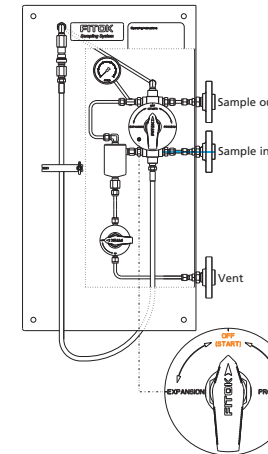
#### 4 - Depressurization/vent

Open the ball valve on the expansion chamber to depressurize and discharge the residual sample out of the sampling line and the expansion chamber. Subsequently, close the ball valve.



#### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



# CSF2 - Expansion Chamber Purge Type

## Features

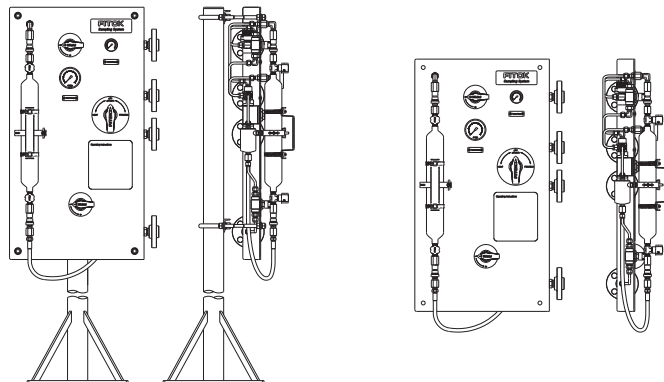
- Sampling from devices or process lines
- System purge and expansion chamber purge
- Predefined sampling volume controlled by an expansion chamber to ensure safe sampling
- Easy operation with a single handle by linkage valve

## Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder ND Series needle valves QC4 Series quick-connects	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Nitrogen Branch</b>	Nitrogen regulator CV Series check valves Pressure gauge	
<b>Expansion Chamber</b>	100ml, to control the predefined sampling volume to 80% of the cylinder volume	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

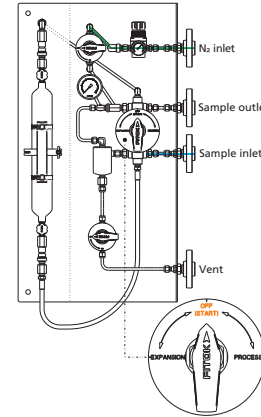
## Typical Installation Mode



## Operation

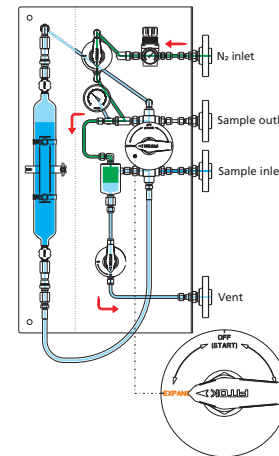
### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



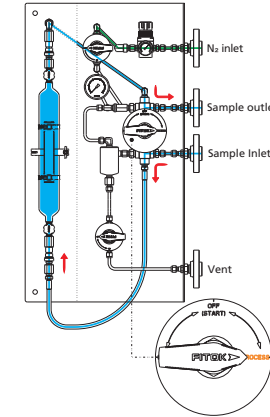
### 4 - Purge

Open the ball valve on the expansion chamber and the ball valve on the vent line, allowing Nitrogen to purge the expansion chamber. Subsequently, close all the ball valves.



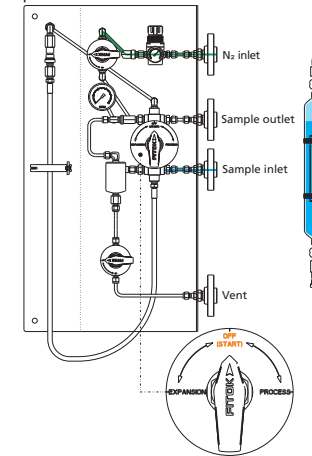
### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the cylinder. Hold for a period of time to ensure representative sampling.



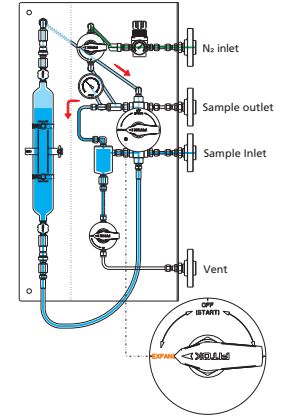
### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



### 3 - Expansion

Turn the handle to the "EXPANSION" position, connecting the cylinder with the expansion chamber. Hold for a period of time to transfer a portion of sample to the expansion chamber. Close the needle valves at both ends of the cylinder.



# CSF3 - Bypass Purge Type with Expansion Chamber

## Features

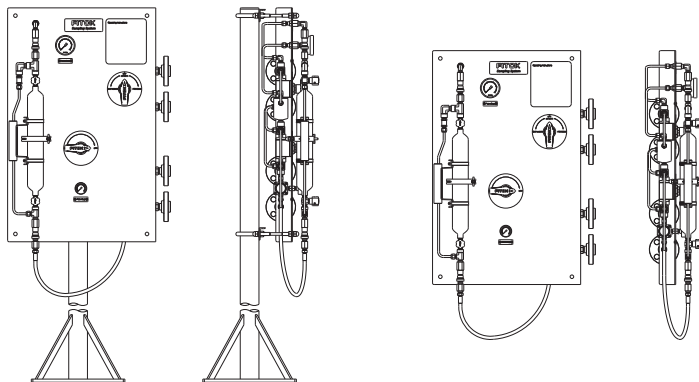
- Sampling from devices or process lines
- System purge and bypass purge
- Predefined sampling volume controlled by an expansion chamber to ensure safe sampling
- Easy operation with a single handle by linkage valve

## Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder ND Series needle valves QC4 Series quick-connects CV Series check valves	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Nitrogen Branch</b>	Nitrogen regulator CV Series check valves Pressure gauge	
<b>Expansion Chamber</b>	100ml, to control the predefined sampling volume to 80% of the cylinder volume	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

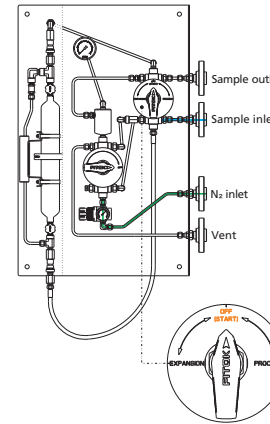
## Typical Installation Mode



## Operation

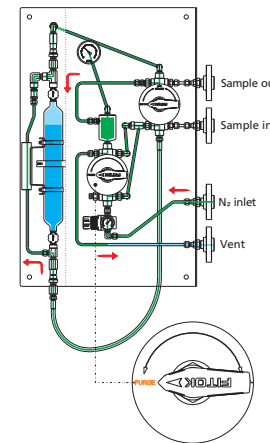
### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



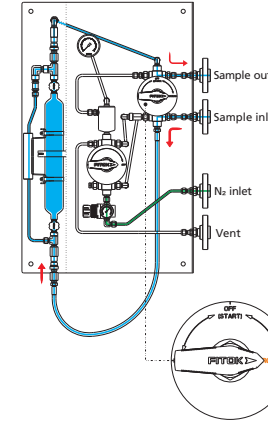
### 4 - Purge

Turn the handle of the valve on the purge line to the "PURGE" position, allowing Nitrogen to flow through the quick-connects and bypass to force the residual sample out of the system.



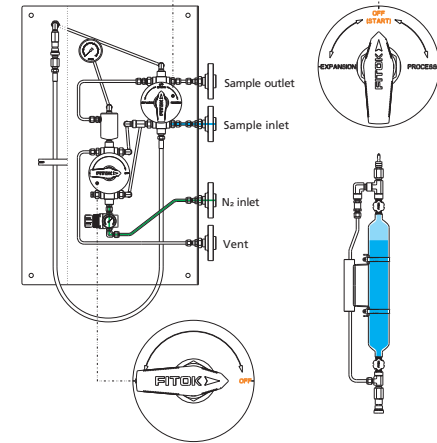
### 2 - Pre-sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the cylinder. Hold for a period of time to ensure representative sampling.



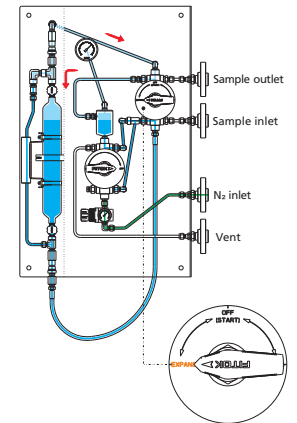
### 5 - Off

Turn the two handles to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



### 3 - Expansion

Turn the handle to the "EXPANSION" position, connecting the cylinder with the expansion chamber. Hold for a period of time to transfer a portion of sample to the expansion chamber. Close the needle valves at both ends of the cylinder.

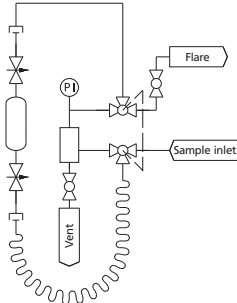


## CSF4 - Vent to Flare Type with Expansion Chamber

### Features

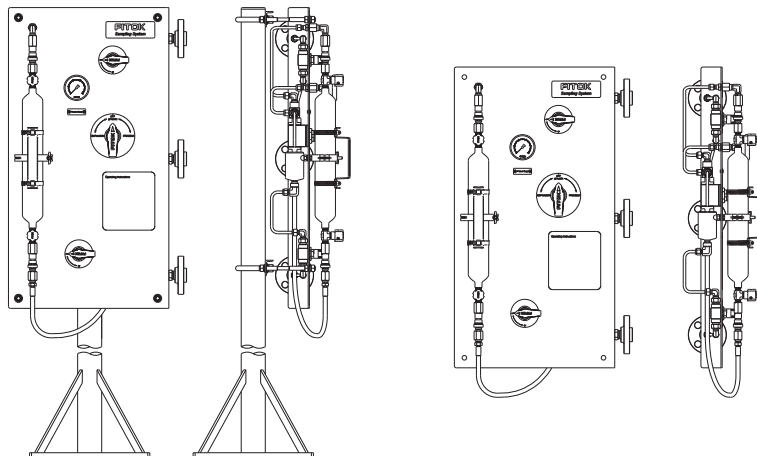
- Sampling from devices or process lines
- System purge to flare (no circulation loop)
- Predefined sampling volume controlled by an expansion chamber to ensure safe sampling
- Easy operation with a single handle by linkage valve

### Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder ND Series needle valves QC4 Series quick-connects	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Expansion Chamber</b>	100 ml, to control the predefined sampling volume to 80% of the cylinder volume	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

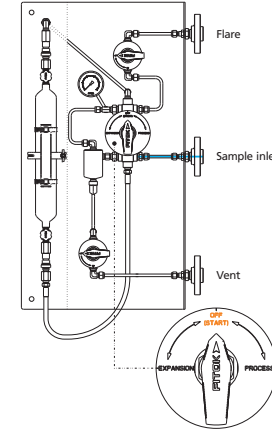
### Typical Installation Mode



### Operation

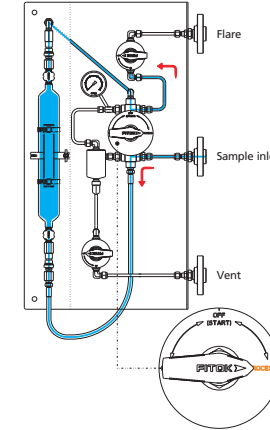
#### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



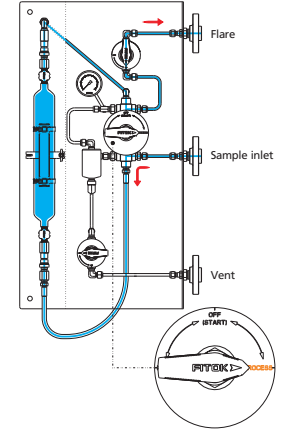
#### 2 - Pre-sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow into and fill the cylinder.



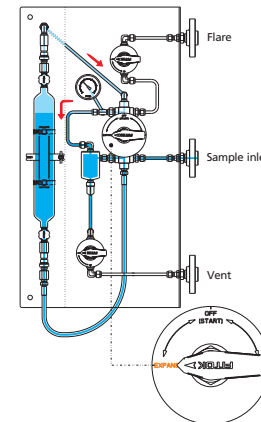
#### 3 - Sampling

Open the ball valve on the flare line, connecting the sampling line to the flare to allow the sample to flow continuously into the cylinder. Hold for a period of time to ensure representative sampling. Subsequently, close the ball valve.



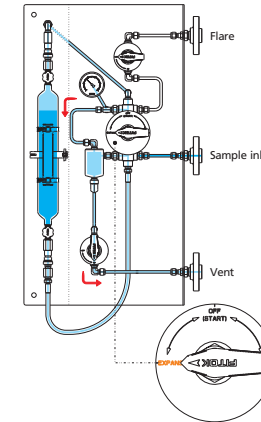
#### 4 - Expansion

Turn the handle to the "EXPANSION" position, connecting the cylinder with the expansion chamber. Hold for a period of time to transfer a portion of sample to the expansion chamber. Close the needle valves at both ends of the cylinder.



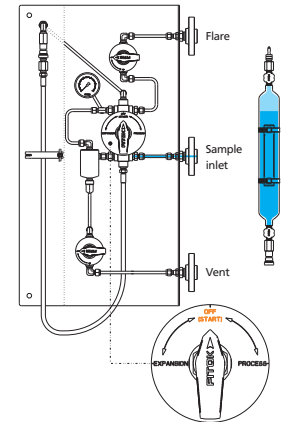
#### 5 - Depressurization/vent

Open the ball valve on the expansion chamber, connecting with the vent line to depressurize and discharge the residual sample out of the system. Subsequently, close the ball valve.



#### 6 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



## CSF5 - Outage Tube Type

### Features

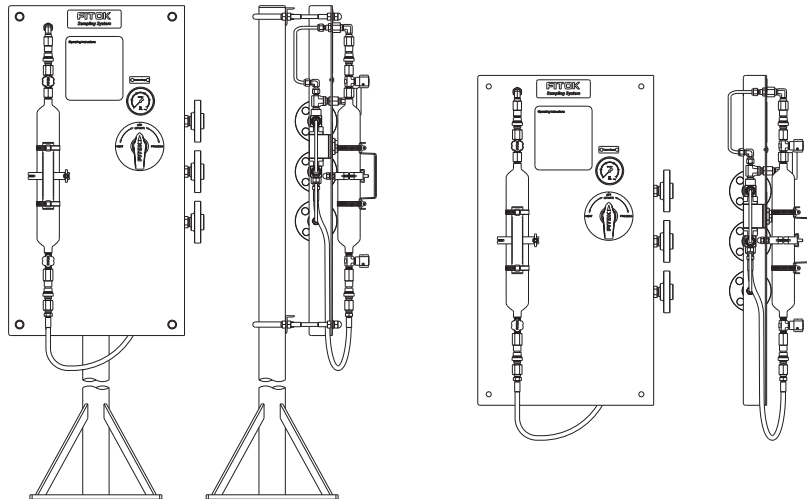
- Sampling from devices or process lines
- System purge
- Predefined sampling volume controlled by an outage tube to ensure safe sampling
- Easy operation with a single handle by linkage valve

### Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder ND Series needle valves QC4 Series quick-connects	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Outage Tube</b>	To control the predefined sampling volume to 80% of the cylinder volume	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

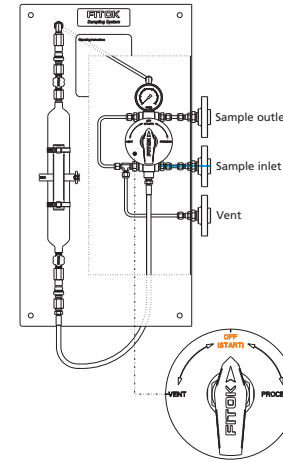
### Typical Installation Mode



### Operation

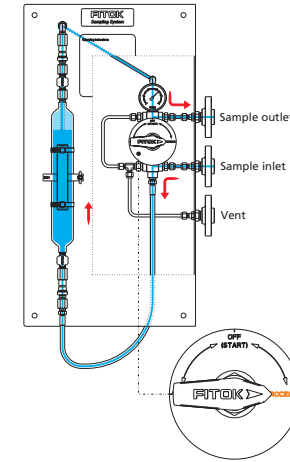
#### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



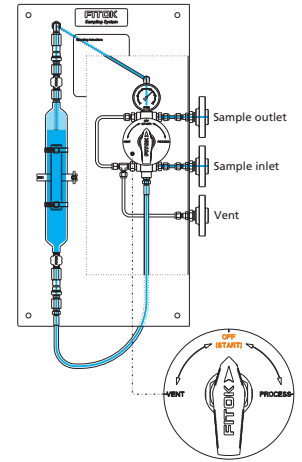
#### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the sample cylinder. Hold for a period of time to ensure representative sampling.



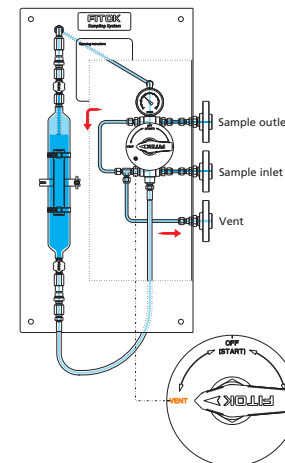
#### 3 - Off

Turn the handle to the "OFF" position. Close the needle valves at both sides of the cylinder.



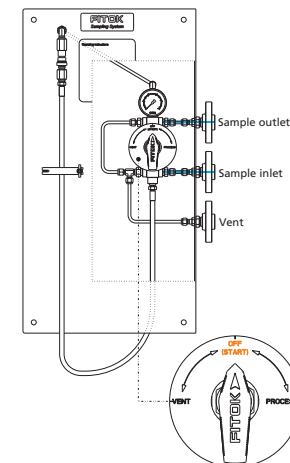
#### 4 - Depressurization/vent

Turn the handle to the "VENT" position, connecting the sampling line with the vent line to depressurize and discharge the residual sample out of the system.



#### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



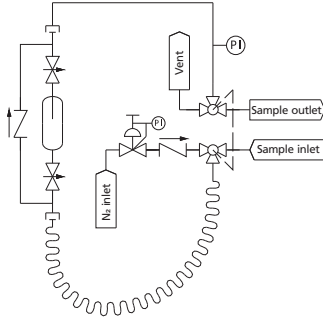
## CSF6 - Bypass Purge Type with Outage Tube

### Features

- Sampling from devices or process lines
- System purge and bypass purge
- Predefined sampling volume controlled by an outage tube to ensure safe sampling
- Easy operation with a single handle by linkage valve

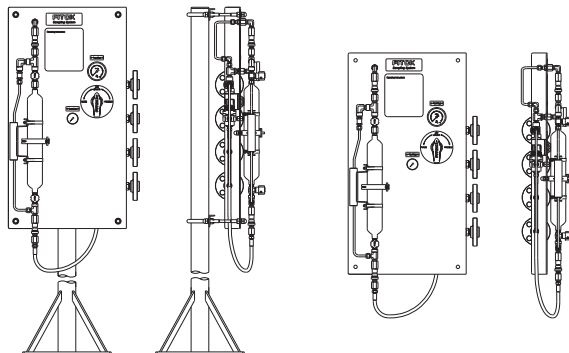
### Basic Configuration

<b>Wetted Material</b>	316 SS
<b>Cylinder Assembly</b>	500 ml cylinder
	ND Series needle valves
	QC4 Series quick-connects
	CV Series check valves
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)
<b>Nitrogen Branch</b>	Nitrogen regulator
	CV Series check valves
	Pressure gauge
<b>Outage Tube</b>	To control the predefined sampling volume to 80% of the cylinder volume
<b>Other Accessories</b>	PS Series metal hoses
	Pressure gauge
<b>Connections</b>	NPS 1/2 flange



Note: Products of other specifications are available upon request.

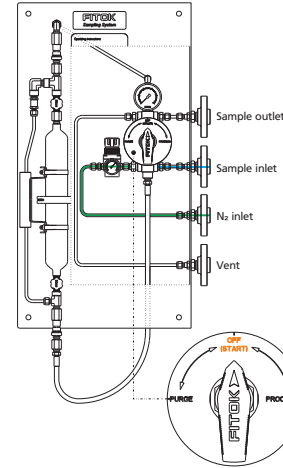
### Typical Installation Mode



### Operation

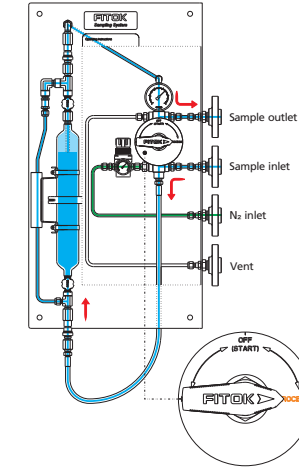
#### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



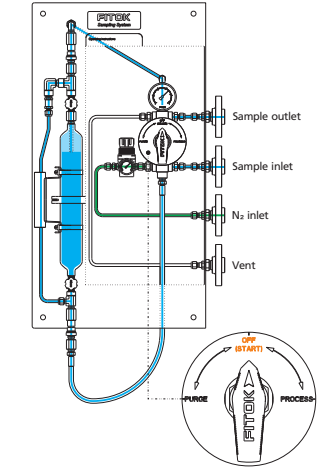
#### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the cylinder. Hold for a period of time to ensure representative sampling.



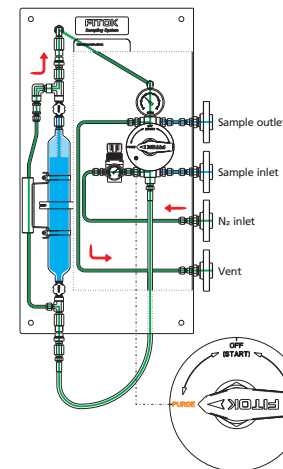
#### 3 - Off

Turn the handle to the "OFF" position. Close the needle valves at both ends of the cylinder.



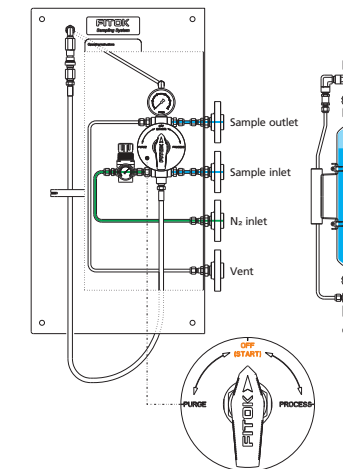
#### 4 - Purge

Turn the handle to the "PURGE" position, allowing Nitrogen to force the residual sample out of the system.



#### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.



# CSF7 - Vent to Flare Type with Outage Tube

## Features

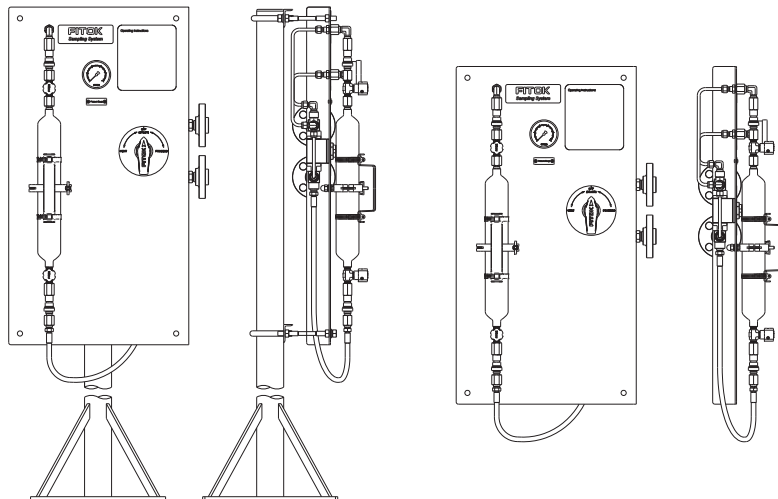
- Sampling from devices or process lines
- System purge to flare (no circulation loop)
- Predefined sampling volume controlled by an outage tube to ensure safe sampling
- Easy operation with a single handle by linkage valve

## Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder	
	ND Series needle valves QC4 Series quick-connects	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Expansion Chamber</b>	To control the predefined sampling volume to 80% of the cylinder volume	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

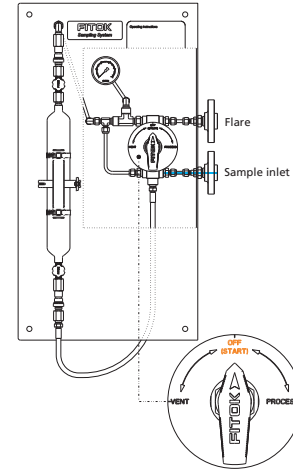
## Typical Installation Mode



## Operation

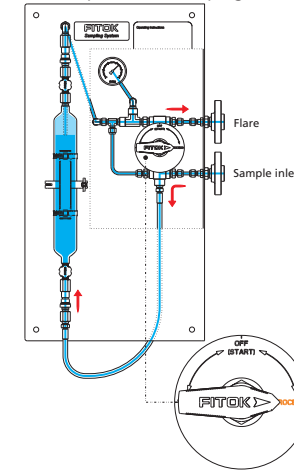
### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



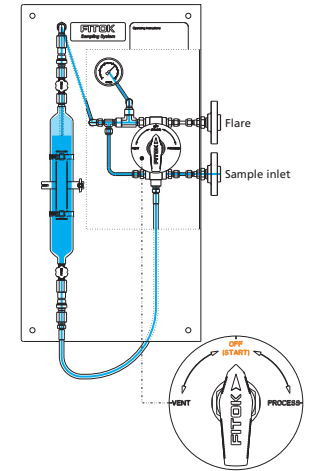
### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the sample cylinder. Hold for a period of time to ensure representative sampling.



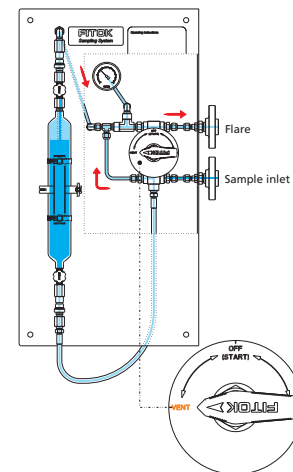
### 3 - Off

Turn the handle to the "OFF" position. Close the needle valves at both sides of the cylinder.



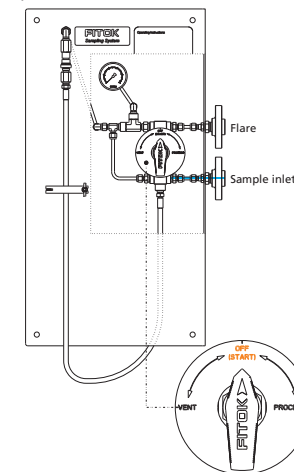
### 4 - Depressurization/vent

Turn the handle to the "VENT" position, connecting the sampling line to the flare to depressurize and discharge the residual sample out of the system.



### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling system.



# CG - Cylinder Configuration Sampling Systems for Gases

## CGG1 - System Purge Type

### Features

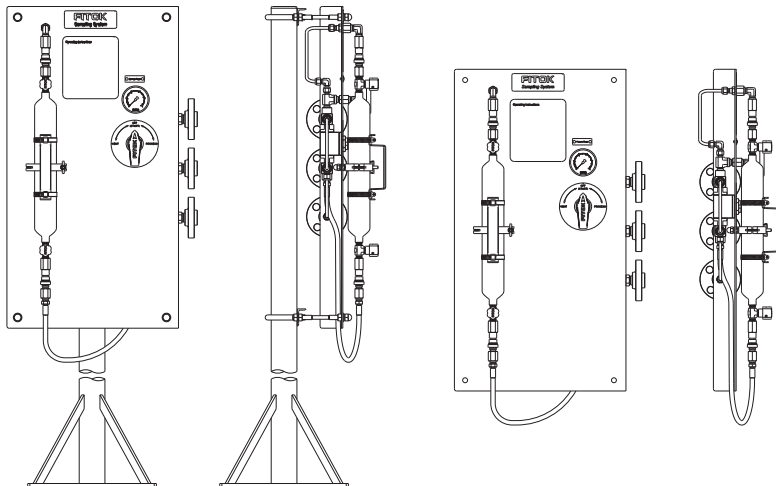
- Sampling from devices or process lines
- System purge
- Easy operation with a single handle by linkage valve

### Basic Configuration

<b>Wetted Material</b>	316 SS	
<b>Cylinder Assembly</b>	500 ml cylinder ND Series needle valves QC4 Series quick-connects	
<b>Sampling Valve</b>	BF Series ball valves (gearbox linkage): PTFE seat and FKM O-ring Max. working pressure: 1500 psig @ 70°F (103 bar @ 20°C) Temperature range: 0°F to 450°F (-18°C to 232°C)	
<b>Other Accessories</b>	PS Series metal hoses Pressure gauge	
<b>Connections</b>	NPS 1/2 flange	

Note: Products of other specifications are available upon request.

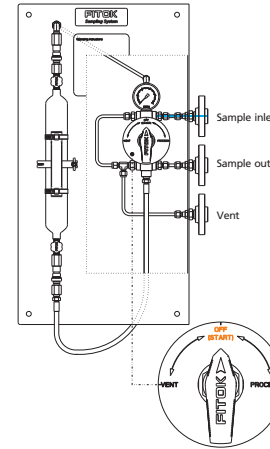
### Typical Installation Mode



## Operation

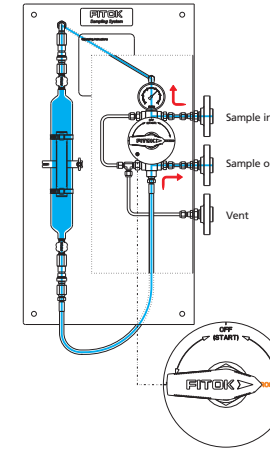
### 1 - Preparation

Install the sample cylinder and connect the hose to the bottom side of the cylinder. Open the needle valves at both ends of the cylinder.



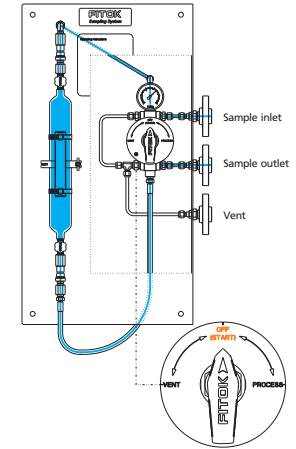
### 2 - Sampling

Turn the handle to the "PROCESS" position, allowing the sample to flow continuously into and fill the cylinder. Hold for a period of time to ensure representative sampling.



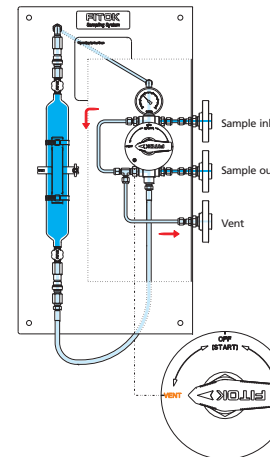
### 3 - Off

Turn the handle to the "OFF" position. Close the needle valves at both ends of the cylinder.



### 4 - Depressurization/vent

Turn the handle to the "VENT" position, connecting the sampling line with the vent line to depressurize and discharge the residual sample.



### 5 - Off

Turn the handle to the "OFF" position and disconnect the hose. Remove the cylinder and connect the hose to the top quick-connect to complete the sampling process.

