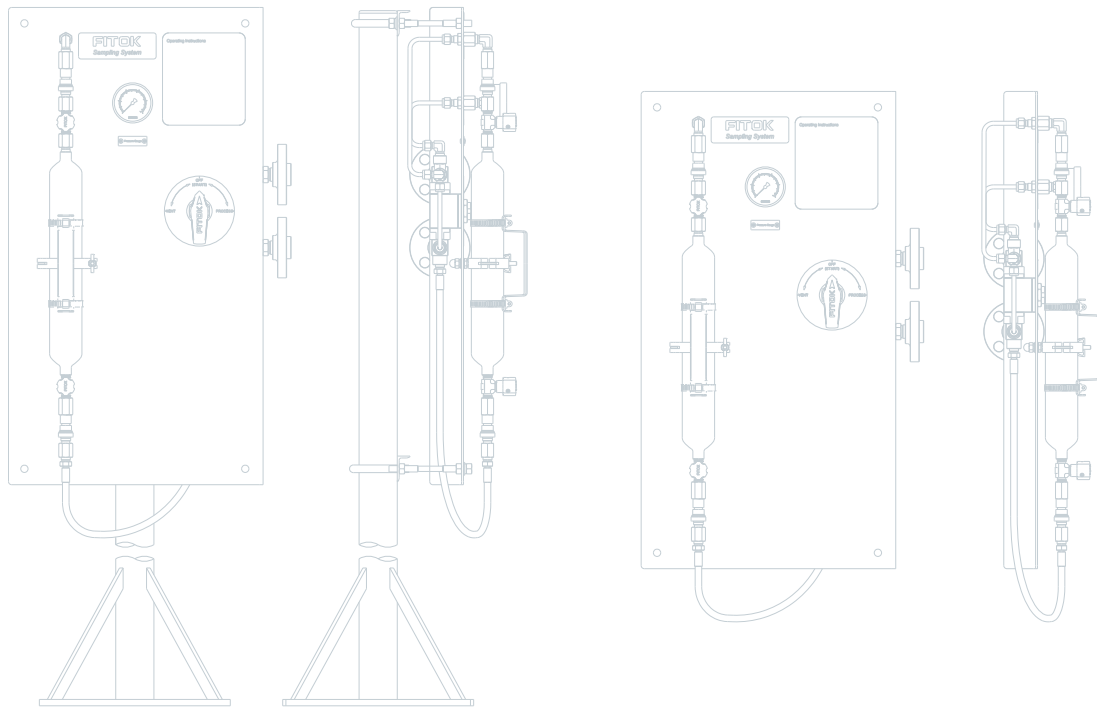


# Cylinder Configuration Sampling Systems for Liquefied Gases



**FITOK**  
Valves and Fittings

[www.fitokgroup.com](http://www.fitokgroup.com)

## CSF2 - Expansion Chamber Purge Type

Jenis pembersihan ruang Ekspansi

### Features

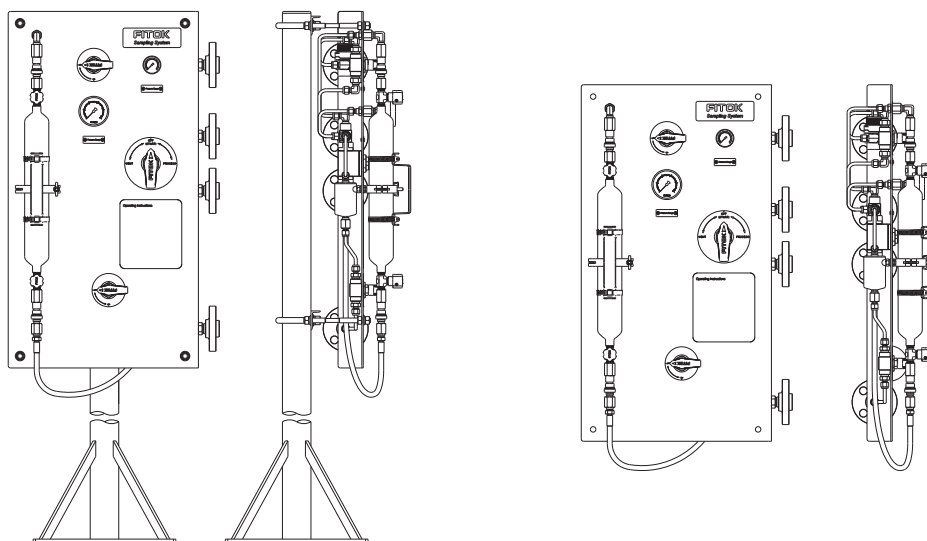
- Sampling from devices or process lines
- System purge and expansion chamber purge
- Predefined sampling volume controlled by an expansion chamber to ensure safe sampling
- Easy operation with a single handle

### 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.

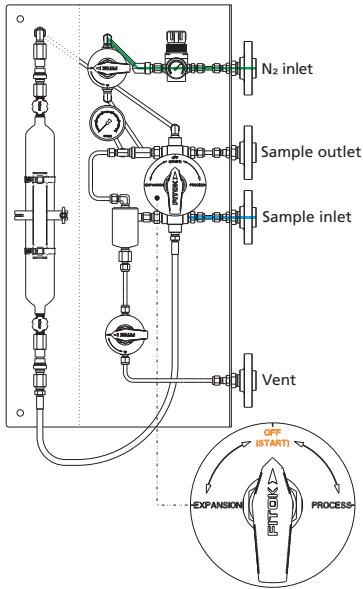
### Typical Installation Mode



## Operation

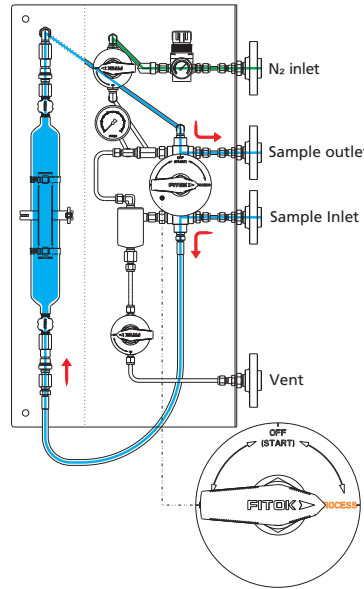
### 1 - Preparation

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.



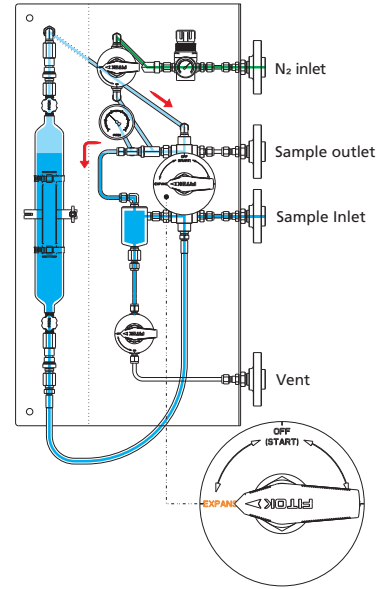
### 2 - Sampling

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.



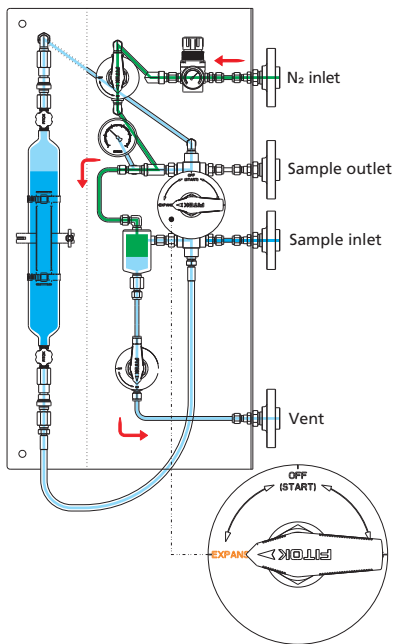
### 3 - Expansion

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.



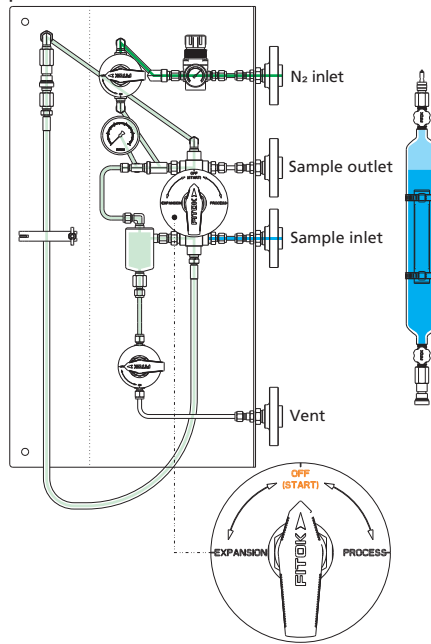
### 4 - Purge

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



### 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.





## Application Questionnaire for Selection of FITOK Sampling System

I. Customer Information		Customer Name		End User	
II. Project Information		Project Name		Site Location	
III. Technical Parameters					
No.	Section	Specification			
1	Process Data	Sample/fluid name and composition			
2		Tag number			
3		Fluid phase state	<input type="radio"/> Liquid	<input type="radio"/> Gas	<input type="radio"/> Liquefied gas
4		Design pressure	<input type="radio"/> psig	<input type="radio"/> bar	
5		Operating pressure* <sup>1</sup>	<input type="radio"/> psig	<input type="radio"/> bar	
6		Saturated vapor pressure* <sup>2</sup>	<input type="radio"/> psig	<input type="radio"/> bar	
7		Design temp.	<input type="radio"/> °C	<input type="radio"/> °F	
8		Operating temp.* <sup>3</sup>	<input type="radio"/> °C	<input type="radio"/> °F	
9		Particles* <sup>4</sup>	<input type="checkbox"/>	Size and Content	_____ μm, _____ %
10	Materials of Construction	Wetted material	<input type="radio"/> 316SS (Std.) <input type="radio"/> Alloy 400 <input type="radio"/> Hastelloy C-276 <input type="radio"/> Others _____		
11		O-ring material	<input type="radio"/> FKM (Viton)(Std.) <input type="radio"/> FFKM (Kalrez) <input type="radio"/> EPDM <input type="radio"/> Others _____		
12		Valve seat material	<input type="radio"/> PTFE (Std.) <input type="radio"/> PEEK <input type="radio"/> PCTFE <input type="radio"/> Others _____		
13	Connection Type	Inlet/outlet type and size	Inlet _____ Outlet _____		
14		Vent type and size	Vent _____		
15		Nitrogen port type and size	Nitrogen port _____		
16	Sample Container	Container type	<input type="radio"/> Bottle <input type="radio"/> Cylinder		
17	Bottle	Bottle volume	<input type="radio"/> 50 ml <input type="radio"/> 60 ml <input type="radio"/> 100 ml <input type="radio"/> 150 ml <input type="radio"/> 250 ml <input type="radio"/> 300 ml <input type="radio"/> 500 ml <input type="radio"/> 1000 ml <input type="radio"/> 2 oz <input type="radio"/> 4 oz <input type="radio"/> 8 oz <input type="radio"/> 16 oz <input type="radio"/> 32 oz <input type="radio"/> Others _____		
18		Needle assembly size: process needle ID (mm) x vent needle ID (mm)	<input type="radio"/> 1.4 x 1.4 (Std.) <input type="radio"/> 2.0 x 1.4 <input type="radio"/> 2.0 x 2.0 <input type="radio"/> 3.0 x 1.4 <input type="radio"/> 3.0 x 3.0 <input type="radio"/> 4.0 x 1.4 <input type="radio"/> 6.0 x 1.4		
19		Bottle material	<input type="radio"/> Soda-lime glass (Std.) <input type="radio"/> Amber glass <input type="radio"/> Borosilicate glass <input type="radio"/> Polyethylene <input type="radio"/> Polypropylene <input type="radio"/> Others _____		
20		Septum material	<input type="radio"/> PTFE coated silicone(Std.) <input type="radio"/> EPDM <input type="radio"/> Silicone rubber <input type="radio"/> FKM <input type="radio"/> PTFE coated butyl <input type="radio"/> Natural rubber <input type="radio"/> Others _____		
21		Cap material	<input type="radio"/> Polypropylene <input type="radio"/> PBT (Polybutylene terephthalate) <input type="radio"/> Aluminium		
22	Cylinder	Cylinder volume	<input type="radio"/> 75 ml <input type="radio"/> 150 ml <input type="radio"/> 300 ml <input type="radio"/> 500 ml <input type="radio"/> 1000 ml <input type="radio"/> 2250 ml <input type="radio"/> Others _____		
23		Cylinder material	<input type="radio"/> 316L (Std.) <input type="radio"/> 304L <input type="radio"/> Alloy 400 <input type="radio"/> Others _____		<input type="checkbox"/> PTFE coated



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24	Accessories	Enclosure type and material	<input type="checkbox"/>	<input type="radio"/> Standard <input type="radio"/> Insulated <input type="radio"/> Heated by electric <input type="radio"/> Heated by steam	<input type="radio"/> 304SS (Std.) <input type="radio"/> 316SS <input type="radio"/> Others _____	
25		Panel	<input type="checkbox"/>	Material	<input type="radio"/> 316SS <input type="radio"/> 304SS <input type="radio"/> Others _____	
26		Pipe stand	<input type="checkbox"/>	Material	<input type="radio"/> 304SS <input type="radio"/> CS20 <input type="radio"/> Others _____	
27		Cooler	<input type="checkbox"/>	Cooling inlet/outlet type and size		Inlet _____ Outlet _____
28		Steam tracing	<input type="checkbox"/>	Steam inlet/outlet type and size		Inlet _____ Outlet _____
29		Others* <sup>5</sup>				
30		P&ID	Please provide comments or sketch if applicable.			
31	Documentation	<input type="checkbox"/> Material Certification EN10204:2004-3.1		<input type="checkbox"/> Inspection & testing report		
32		<input type="checkbox"/> Others, please specify:				

- Remarks:**
- \* 1 Fix volume sampling system is recommended when inlet pressure > 150psig (10.3bar).
  - \* 2 Cylinder configuration sampling system is recommended when vapor pressure > 10psia (0.69bar).
  - \* 3 Cooler is recommended when sample temperature > 140°F (60°C).
  - \* 4 Filter is recommended when particle size >100μm.
  - \* 5 If other accessories (such as: check valve, carbon canister, spring return handle and etc.) are needed, please specify.
- 6  Single choice       Optional