

# Sampling Cylinders Compliant with the Transportable Pressure Equipment Directive (TPED)

SC Series



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## Application

- Hydrocarbon sampling in refineries
- Sampling gas in chromatography
- Condensate sampling in fossil fuel and nuclear power plants
- Surge accumulators or reaction vessels

## Features

- Volume varies from 40~3785 mL
- 1/8, 1/4, and 1/2 NPT female connections
- Cylinder heads are formed by utilizing spinning process for consistent strength, size and dimensions
- Special high tolerance NPT thread
- All models are internally sandblasted to smooth surface imperfections and remove foreign particles
- Double ended cylinders in most capacities are available as standard
- Cylinders may be furnished with valves, carrying handles, caps and plugs
- Approval of TPED (Transportable Pressure Equipment Directive)

## Pressure Ratings

The pressure ratings for FITOK sampling cylinders and valves shown in this brochure are in accordance with the EC-type examination for the products.

## Materials

Standard FITOK cylinders are available in 304L and 316L stainless steel.

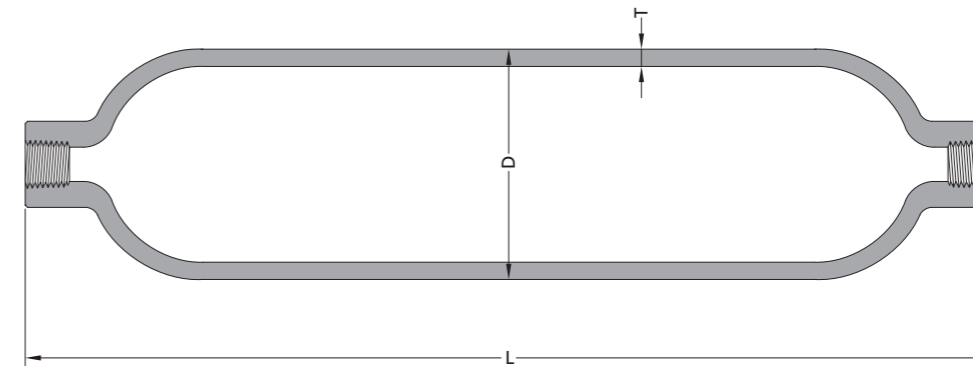
## Testing

Every TPED-compliant sampling cylinder is hydrostatically tested at 1.5 times the pressure rating. Every TPED-compliant cylinder valve is factory tested with nitrogen at 69 bar (1000 psig). Seats have a maximum allowable leak rate of 0.1 std cm<sup>3</sup>/min. Shell testing is performed at 1.5 times the pressure rating to a requirement of no detectable leakage with a liquid leak detector.

## Cleaning and Packaging

All FITOK TPED-compliant sampling cylinders and cylinder valves are cleaned and packaged in accordance with FITOK FC-01 standard cleaning procedures. Cleaning and packaging in accordance with FITOK FC-02 special cleaning procedures, to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C are available as an option for cylinder valves.

## Construction



## Technical Data

Dimensions, in millimeters (inches), are for reference only and are subject to change.

Basic Ordering No.	Working Pressure psig (bar)	Internal Volume cm <sup>3</sup> ± 5%	P - Female NPT	Dimension, in. (mm)			
				Outside Diameter	Length	Minimum Wall Thickness	Weight lb (kg)
4L-SC13-N2-40	1885 (130)	40	1/8"	1.25 (31.8)	5.39 (137)	0.07 (1.8)	0.82 (0.37)
4L-SC13-N4-50		50	1/4"	1.5 (38.1)	5.23 (133)		0.97 (0.44)
4L-SC13-N4-75		75			6.38 (162)		1.30 (0.59)
4L-SC10-N4-150	1450 (100)	150	1/4"	2.0 (50.8)	7.91 (201)	0.09 (2.4)	2.03 (0.92)
4L-SC10-N4-300		300			295 (11.6)		4.01 (1.82)
4L-SC10-N4-400		400			14.1 (358)		4.12 (1.87)
4L-SC10-N4-500		500			17.7 (450)		4.25 (1.93)
4L-SC10-N4(8)-1000		1000			11.3 (287)		6.86 (3.11)
4L-SC10-N4(8)-2250	4350 (300)	2250	1/4" 1/2"	4.0 (102)	16.6 (422)	0.21 (5.2)	11.49 (5.21)
4L-SC10-N4(8)-3785		3785	1/4"	2.0 (50.8)	26.1 (663)		18.58 (8.43)
6L-SC10-N4-150		150			1/4"		3.5 (88.9)
6L-SC10-N4-300	300	11.6 (295)	4.03 (1.83)				
6L-SC10-N4-500	500	17.7 (450)	6.04 (2.74)				
6L-SC10-N4-1000	1000	11.3 (287)	7.03 (3.19)				
6L-SC30-N4-150	4350 (300)	150	1/2"	1.9 (48.2)		8.30 (210)	
6L-SC30-N4-300		300			14.8 (375)	5.45 (2.47)	
6L-SC30-N4-500		500			23.8 (604)	9.10 (4.10)	

## Internal Cylinder Surface

### PTFE Coating

Internal cylinder surfaces can be coated with PTFE to provide excellent lubricity and very low permeability.

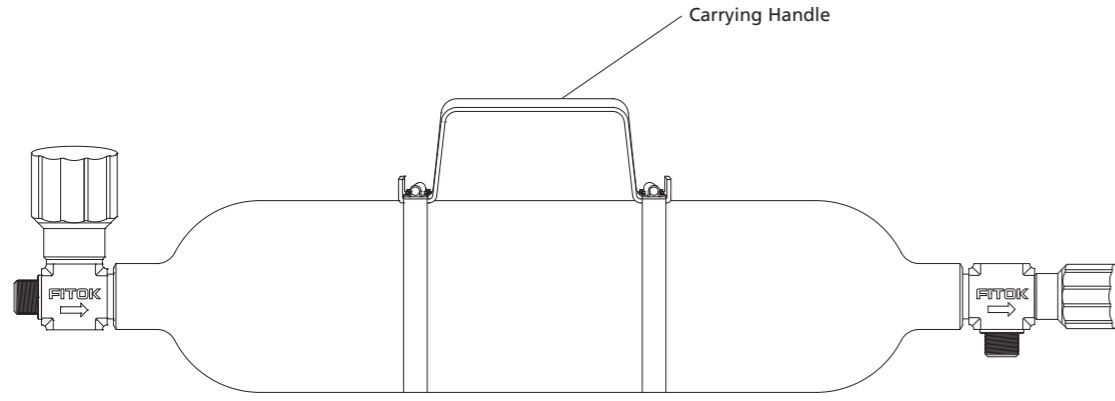
### Electropolishing

Electropolishing can provide a clean internal surface with a high degree of passivation.

## Sample Cylinder Accessories

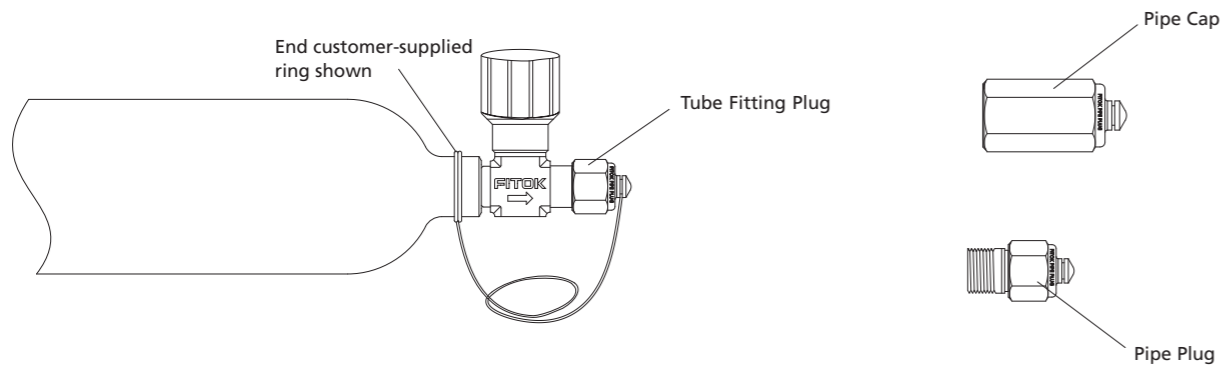
### Carrying Handle

Provides convenient carrying of sample cylinder. Made from 304 stainless steel.



### Caps and Plugs

Caps and plugs protect FITOK tube fitting or NPT end connections on valves during cylinder transport. Contact the authorized representative or FITOK Group for details.



## Part Number Description

Material	Series	Working Pressure	End Connection	Cap & Plug	Carrying Handle	Internal Cylinder Surface	Internal Volume	Special Application	Cleaning and Packaging
6L 316L SS	SC	10 100 bar	N2 1/8 Female NPT	No	No	No Special Treatment	40 cm <sup>3</sup>	No	FC-01
4L 304L SS		13 130 bar	N4 1/4 Female NPT	TP Tube Fitting Plug	H2 Cylinder OD 1.9" to 3.5"	T PTFE Coating	50 cm <sup>3</sup>	S NACE MR0175	F2 FC-02
		30 300 bar	N8 1/2 Female NPT	TC Tube Cap	H4 Cylinder OD 4"	E Electropolishing	75 cm <sup>3</sup>		
				PP Pipe Plug			150 cm <sup>3</sup>		
				PC Pipe Cap			300 cm <sup>3</sup>		
							500 cm <sup>3</sup>		
							400 cm <sup>3</sup>		
							1000 cm <sup>3</sup>		
							2250 cm <sup>3</sup>		
							3785 cm <sup>3</sup>		

Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK company or authorized agents.

# Cylinder Valves

## ND Series Nonrotating-Stem Needle Valve

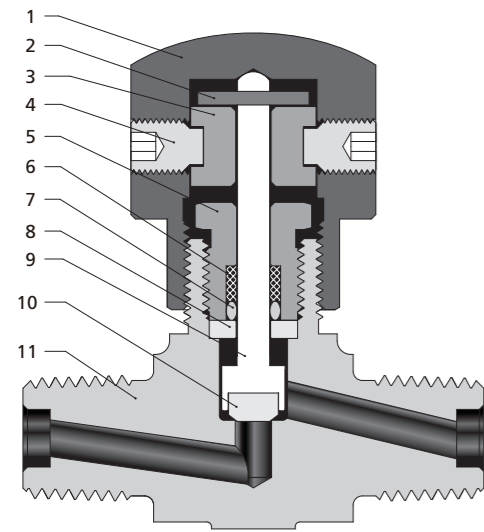
### Features

- Orifice size 5.6 mm (0.218 in.)
- Flow coefficient 0.53
- Compact, rugged design
- Protective handle prevents contaminants from entering functional valve parts
- Valve can be configured with rupture disc

### Pressure-Temperature Ratings

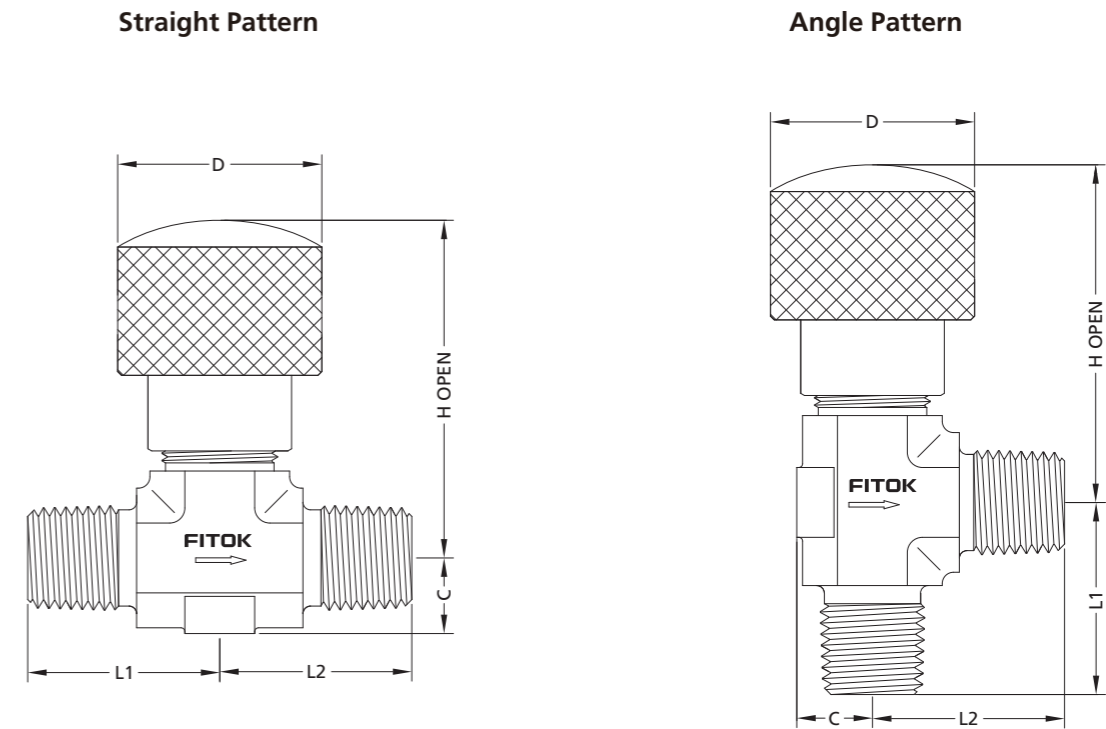
- Pressure rating: 172 bar (2496 psig)
- Temperature rating within the range: -20 to 65°C (-4 to 150°F)

### Standard Materials of Construction



Component	Material Grade/ASTM Specification	
1	Handle	Aluminum
2	Stop pin	Stainless steel
3	Spool	Aluminum
4	Set screw	Stainless steel
5	Packing bolt	316 SS/A276
6	Backing ring	PTFE/D1710
7	O-ring	Buna C or ethylene propylene
8	Washer	316 SS/A276
9	Stem	316 SS/A276
10	Stem tip	PEEK
11	Body	316 SS/A182
Lubricant	Molybdenum disulfide in hydrocarbon carrier; O-ring-silicone-based; machine screw-hydrocarbon thread lock	

## ND Series Nonrotating-Stem Needle Valve



End Connection Size		Basic Ordering Number		Dimensions, in. (mm)				
Inlet	Outlet	Buna C O-Ring	Ethylene Propylene O-Ring	L1	L2	C	D	H
1/4 Female NPT	1/4 Female NPT	NDSS-FNS4-8PB (NDSS-FNS4-8PB-A)	NDSS-FNS4-8PE (NDSS-FNS4-8PE-A)	1.13 (28.6)	0.53 (13.5)	0.53 (13.5)	1.22 (31.0)	2.05 (52.0)
1/4 Male NPT	1/4 Male NPT	NDSS-NS4-8PB (NDSS-NS4-8PB-A)	NDSS-NS4-8PE (NDSS-NS4-8PE-A)					
3/8 Male NPT	3/8 Male NPT	NDSS-NS6-8PB (NDSS-NS6-8PB-A)	NDSS-NS6-8PE (NDSS-NS6-8PE-A)					
1/4 Male NPT	1/4 Female NPT	NDSS-NS4-FNS4-8PB (NDSS-NS4-FNS4-8PB-A)	NDSS-NS4-FNS4-8PE (NDSS-NS4-FNS4-8PE-A)					
1/2 Male NPT	1/4 Female NPT	NDSS-NS8-FNS4-8PB (NDSS-NS8-FNS4-8PB-A)	NDSS-NS8-FNS4-8PE (NDSS-NS8-FNS4-8PE-A)	1.5 (38.1)	0.62 (15.8)	0.53 (13.5)		
1/4 Male NPT	3/8 in. FITOK	NDSS-NS4-FL6-8PB (NDSS-NS4-FL6-8PB-A)	NDSS-NS4-FL6-8PE (NDSS-NS4-FL6-8PE-A)	1.13 (28.6)	1.29 (32.8)	0.53 (13.5)		
3/8 in. FITOK	3/8 in. FITOK	NDSS-FL6-8PB (NDSS-FL6-8PB-A)	NDSS-FL6-8PE (NDSS-FL6-8PE-A)	32.8 (1.29)	0.53 (13.5)			

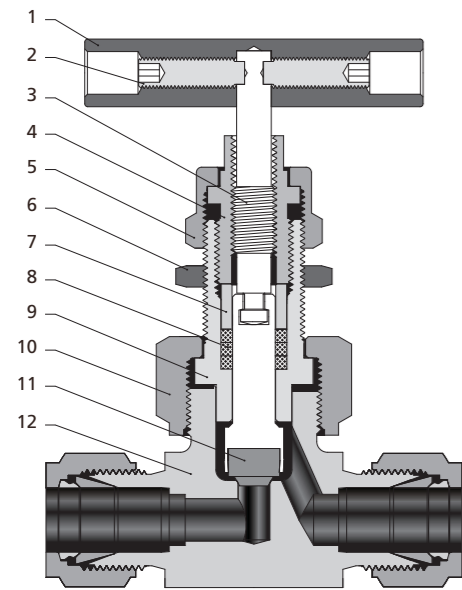
## NU Series Severe-Service Union-Bonnet Needle Valves

### Features

- Orifice size 4.0 mm (0.156 in.)
- Flow coefficient 0.35
- Union-bonnet construction prevents accidental valve disassembly.
- Packing bolt design permits packing adjustments in the open position.
- Safety back seating seals in fully open position.

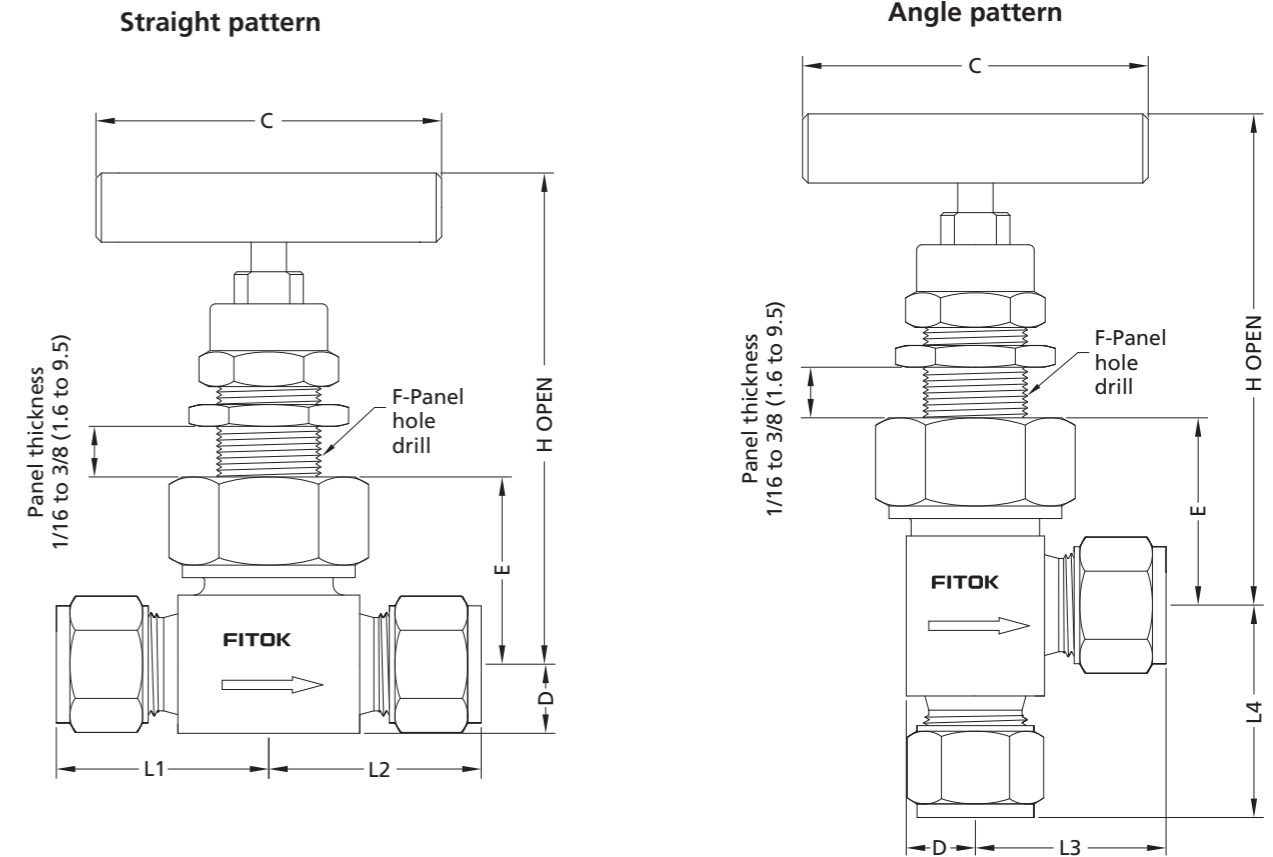
### Pressure-Temperature Ratings

- Pressure rating: 345 bar (5003 psig)
- Temperature rating within the range: -20 to 65°C (-4 to 150°F)



Component	Material Grade/ASTM Specification	
1	Handle	Stainless steel
2	Set screw	Nickel cadmium-plated steel
3	Upper stem	316 SS/A276
4	Packing bolt	304 SS/A276
5	Lock nut	316 SS/A276
6	Panel nut	316 SS/A783
7	Gland	316 SS/A276
8	Packing	PEEK
9	Bonnet	316 SS/A479
10	Union nut	316 SS/A276
11	Lower stem	Chrome plated 316 SS/A276
	Stem tip	PEEK
12	Body	316 SS/A182
Lubricant		Nickel antiseize with hydrocarbon carrier

## NU Series Severe-Service Union-Bonnet Needle Valves



End Connection Size		Basic Ordering Number	Dimensions, in. (mm)						
Inlet	Outlet		L1	L2	L3	L4	C	D	H
1/8 Female NPT	1/8 Female NPT	NUSS-FNS2-7P-PSH (NUSS-FNS2-7P-PSH-A)	1.00 (25.4)		0.89 (22.6)	1.00 (25.4)	0.39 (9.9)	1.75 (44.5)	3.04 (77.2)
1/4 Female NPT	1/4 Female NPT	NUSS-FNS4-7P-PSH (NUSS-FNS4-7P-PSH-A)	1.03 (26.2)						
1/4 Male NPT	1/4 Male NPT	NUSS-NS4-7P-PSH (NUSS-NS4-7P-PSH-A)	1.00 (25.4)	1.00 (25.4)					
1/4 Male NPT	1/4 Female NPT	NUSS-NS4-FNS4-7P-PSH (NUSS-NS4-FNS4-7P-PSH-A)	1.00 (25.4)	1.03 (26.0)	0.89 (22.6)				
1/4 in. FITOK	1/4 in. FITOK	NUSS-FL4-7P-PSH (NUSS-FL4-7P-PSH-A)	1.22 (30.9)	1.16 (29.5)	37.6 (148)				
6 mm FITOK	6 mm FITOK	NUSS-ML6-7P-PSH (NUSS-ML6-7P-PSH-A)							
8 mm FITOK	8 mm FITOK	NUSS-ML8-7P-PSH (NUSS-ML8-7P-PSH-A)							