

# VL Series Vacuum Tube Fittings

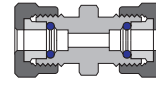


**FITOK**  
Valves and Fittings

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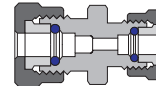
# Contents

Unions - U



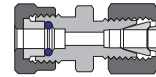
01

Reducing Unions - U



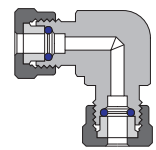
02

Tube Fitting Unions - U



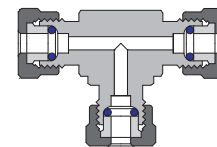
02

Union Elbows - LU



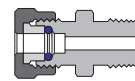
02

Union Tees - TTT



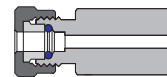
02

Male Connectors - CM



02

Adapters - CW



03

Nuts - N



03

O-rings - VI7



03

## VL Series

### Features

- ⊙ Stainless steel construction, fluorocarbon FKM O-ring
- ⊙ Available in tube sizes from 1/16" to 1 1/2"
- ⊙ Working temperature: -25°F to 400°F (-31°C to 204°C)
- ⊙ Knurled nut for easy, finger-tight assembly
- ⊙ Reliable, repeatable sealing performance

### Testing

- ⊙ The VL vacuum fitting design has been helium leak tested to a maximum leak rate of  $4 \times 10^{-9}$  std  $\text{cm}^3/\text{s}$  at ambient temperature.
- ⊙ The leak rate increases as temperature increases due to permeation through the O-ring.

### Cleaning and Packaging

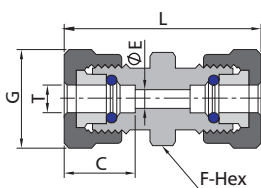
- ⊙ VL vacuum fittings meet the requirements of FITOK Standard Cleaning and Packing.
- ⊙ VL vacuum fittings are cleaned to remove machine oil, grease and loose particles.

### Ordering Information

- ⊙ The E dimension refers to the smallest nominal inside diameter of the part.
- ⊙ To order straight fittings bored through, add T to the ordering number.  
Example: SS-TU-VL6  
SS-TCM-VL8

## Dimensions

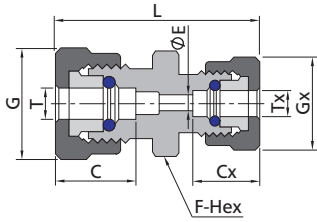
### Unions



T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)				
		L	C	E	G	F
1/16	SS-U-VL1	1.23 (31.2)	0.43 (10.9)	0.05 (1.3)	3/8	3/8 (9.5)
1/8	SS-U-VL2	1.40 (35.6)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	SS-U-VL4	1.63 (41.4)	0.62 (15.7)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	SS-U-VL6	1.81 (46.0)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	SS-U-VL8	1.84 (46.7)	0.80 (20.3)	0.40 (10.2)	15/16	7/8 (22.2)
5/8	SS-U-VL10	1.84 (46.7)	0.84 (21.3)	0.50 (12.7)	1 1/8	1 1/16 (27.0)
3/4	SS-U-VL12	2.05 (52.1)	0.94 (23.9)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	SS-U-VL16	2.15 (54.6)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2 (38.1)
1 1/2	SS-U-VL24	2.27 (57.6)	0.94 (23.9)	1.38 (35.1)	2 1/16	2 1/8 (54.0)

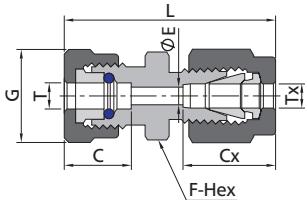
Dimensions are for reference only and are subject to change.

**Reducing Unions**



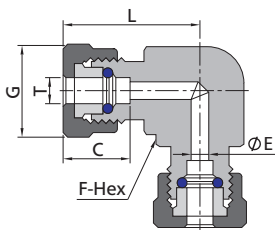
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)						
			L	C	Cx	E	G	Gx	F
3/8	1/4	SS-U-VL6-VL4	1.72 (43.7)	0.66 (16.8)	0.62 (15.7)	0.18 (4.6)	13/16	11/16	13/16 (20.6)
1/2	1/4	SS-U-VL8-VL4	1.75 (44.4)	0.80 (20.3)	0.62 (15.7)	0.18 (4.6)	15/16	11/16	7/8 (22.2)

**Tube Fitting Unions**



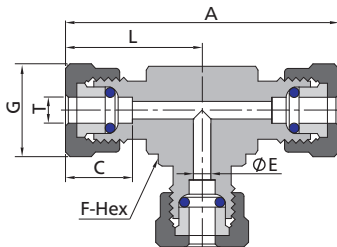
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)					
			L	C	Cx	E	G	F
1/4	1/4	SS-U-VL4-FL4	1.66 (42.2)	0.62 (15.7)	0.60 (15.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	3/8	SS-U-VL6-FL6	1.81 (46.0)	0.66 (16.8)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	1/2	SS-U-VL8-FL8	1.95 (49.5)	0.80 (20.3)	0.90 (22.9)	0.40 (10.2)	15/16	7/8 (22.2)

**Union Elbows**



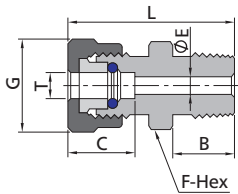
T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)				
		L	C	E	G	F
1/4	SS-LU-VL4	1.14 (29.0)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	SS-LU-VL6	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	SS-LU-VL8	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	13/16 (20.6)

**Union Tees**



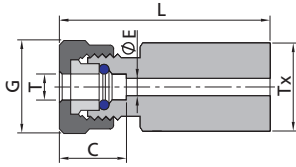
T-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)					
		A	L	C	E	G	F
1/8	SS-TTT-VL2	2.12 (53.8)	1.06 (26.9)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	SS-TTT-VL4	2.30 (58.4)	1.15 (29.2)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	SS-TTT-VL6	2.72 (69.1)	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	SS-TTT-VL8	2.72 (69.1)	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	11/16 (17.5)
3/4	SS-TTT-VL12	3.30 (83.8)	1.65 (41.9)	0.94 (23.9)	0.62 (15.7)	1 1/4	15/16 (23.8)
1	SS-TTT-VL16	3.64 (92.4)	1.82 (46.2)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/4 (31.8)

**Male Connectors**



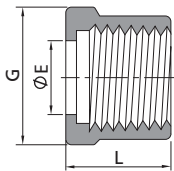
Tube O.D. (in.)	NPT Size in.	Ordering Number	Dimensions, in. (mm)					
			L	C	B	E	G	F
1/16	1/8	SS-CM-VL1-NS2	1.12 (28.4)	0.43 (10.9)	0.38 (9.6)	0.05 (1.3)	3/8	7/16 (11.1)
1/8	1/8	SS-CM-VL2-NS2	1.22 (31.0)	0.43 (10.9)	0.38 (9.6)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	1/8	SS-CM-VL4-NS2	1.35 (34.3)	0.62 (15.7)	0.38 (9.6)	0.18 (4.6)	11/16	5/8 (15.9)
1/4	1/4	SS-CM-VL4-NS4	1.53 (38.9)	0.62 (15.7)	0.56 (14.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	1/8	SS-CM-VL6-NS2	1.44 (36.6)	0.66 (16.8)	0.38 (9.6)	0.18 (4.6)	13/16	13/16 (20.6)
3/8	1/4	SS-CM-VL6-NS4	1.62 (41.1)	0.66 (16.8)	0.56 (14.2)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	3/8	SS-CM-VL8-NS6	1.65 (41.9)	0.80 (20.3)	0.56 (14.2)	0.40 (10.2)	15/16	7/8 (22.2)
1/2	1/2	SS-CM-VL8-NS8	1.84 (46.7)	0.80 (20.3)	0.75 (19.1)	0.40 (10.2)	15/16	7/8 (22.2)
3/4	3/4	SS-CM-VL12-NS12	1.96 (49.8)	0.94 (23.9)	0.75 (19.1)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	1	SS-CM-VL16-NS16	2.25 (57.2)	0.94 (23.9)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2 (38.1)

**Adapters**



T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Ordering Number	Dimensions, in. (mm)			
			L	C	E	G
1/16	1/4	SS-CW-VL1-A4	1.12 (28.4)	0.43 (10.9)	0.05 (1.3)	3/8
1/8	1/4	SS-CW-VL2-A4	1.20 (30.5)	0.43 (10.9)	0.09 (2.3)	9/16
1/8	3/8	SS-CW-VL2-A6	1.21 (30.7)	0.43 (10.9)	0.09 (2.3)	9/16
1/4	1/4	SS-CW-VL4-A4	1.34 (34.0)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	3/8	SS-CW-VL4-A6	1.33 (33.8)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	1/2	SS-CW-VL4-A8	1.47 (37.3)	0.62 (15.7)	0.18 (4.6)	11/16
3/8	3/8	SS-CW-VL6-A6	1.47 (37.3)	0.66 (16.8)	0.28 (7.1)	13/16
3/8	1/2	SS-CW-VL6-A8	1.58 (40.1)	0.66 (16.8)	0.28 (7.1)	13/16
1/2	5/8	SS-CW-VL8-A10	1.64 (41.7)	0.80 (20.3)	0.40 (10.2)	15/16
1/2	3/4	SS-CW-VL8-A12	1.69 (42.9)	0.80 (20.3)	0.40 (10.2)	15/16
3/4	1	SS-CW-VL12-A16	1.78 (45.2)	0.94 (23.9)	0.62 (15.7)	1 1/4
1	1 1/4	SS-CW-VL16-A20	1.80 (45.7)	0.94 (23.9)	0.87 (22.1)	1 9/16
1 1/2	1 1/2	SS-CW-VL24-A24	1.98 (50.3)	0.94 (23.9)	1.25 (31.8)	2 1/16

**Nuts**



T-Tube O.D. (in.)	Ordering Number	Thread Size	Dimensions, in. (mm)		
			L	E	G
1/16	SS-N-VL1	1/4-20 UNC	0.38 (9.60)	0.07 (1.80)	3/8
1/8	SS-N-VL2	3/8-20 UN	0.41 (10.4)	0.13 (3.30)	9/16
1/4	SS-N-VL4	1/2-20 UNF	0.53 (13.5)	0.26 (6.60)	11/16
3/8	SS-N-VL6	5/8-20 UN	0.62 (15.7)	0.38 (9.60)	13/16
1/2	SS-N-VL8	3/4-20 UNEF	0.62 (15.7)	0.51 (13.0)	15/16
5/8	SS-N-VL10	15/16-20 UNEF	0.62 (15.7)	0.63 (16.0)	1 1/8
3/4	SS-N-VL12	1 1/16-20 UN	0.72 (18.3)	0.76 (19.3)	1 1/4
1	SS-N-VL16	1 3/8-20 UN	0.72 (18.3)	1.01 (25.6)	1 9/16
1 1/2	SS-N-VL24	1 7/8-20 UN	0.72 (18.3)	1.51 (38.4)	2 1/16

**O-rings**



T-Tube O.D. (in.)	Ordering Number	Material
1/16	VI7-001	70 durometer fluorocarbon FKM
1/8	VI7-006	
1/4	VI7-010	
3/8	VI7-012	
1/2	VI7-014	
5/8	VI7-114	
3/4	VI7-116	
1	VI7-120	
1 1/2	VI7-128	

## **FITOK Group**

### **FITOK GmbH (Headquarter)**

Sprendlinger Landstr. 115, 63069 Offenbach am Main, Germany  
Tel.: +49 69 8900 4498 Fax: +49 69 8900 4495

### **FITOK, Inc.**

13843 North Promenade Blvd., Suite 750, Stafford, Texas 77477, USA  
Tel.: +1 281 888 0077 Fax: +1 281 582 4051

### **FITOK Incorporated**

1-4F, Block C, Zone E, Yingtailong Industrial Park, Dalang Street,  
Longhua District, Shenzhen, 518109, China  
Tel.: +86 755 2803 2500 Fax: +86 755 2803 2619

### **FITOK Middle East Oil Equipment Trading LLC**

208-209, Makateb Tower, Airport Road, P.O.Box 185412, Deira, Dubai, UAE  
Tel.: +971 4 2959 853 Fax: +971 4 2959 854

[info@fitokgroup.com](mailto:info@fitokgroup.com)  
[www.fitokgroup.com](http://www.fitokgroup.com)

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