



ULTRA HIGH PURITY **BELLOWS VALVES** VCB Series

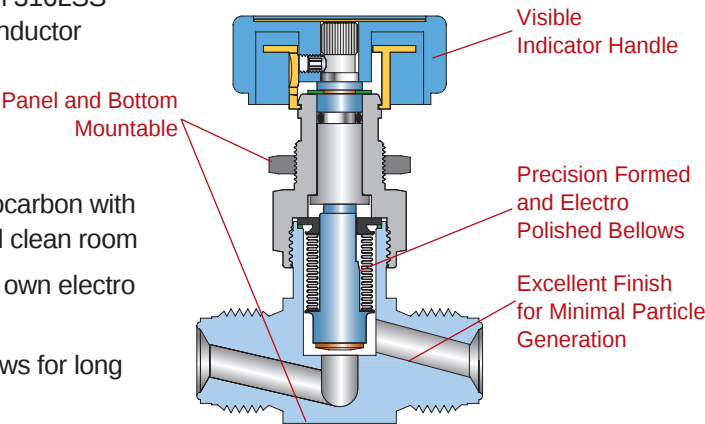
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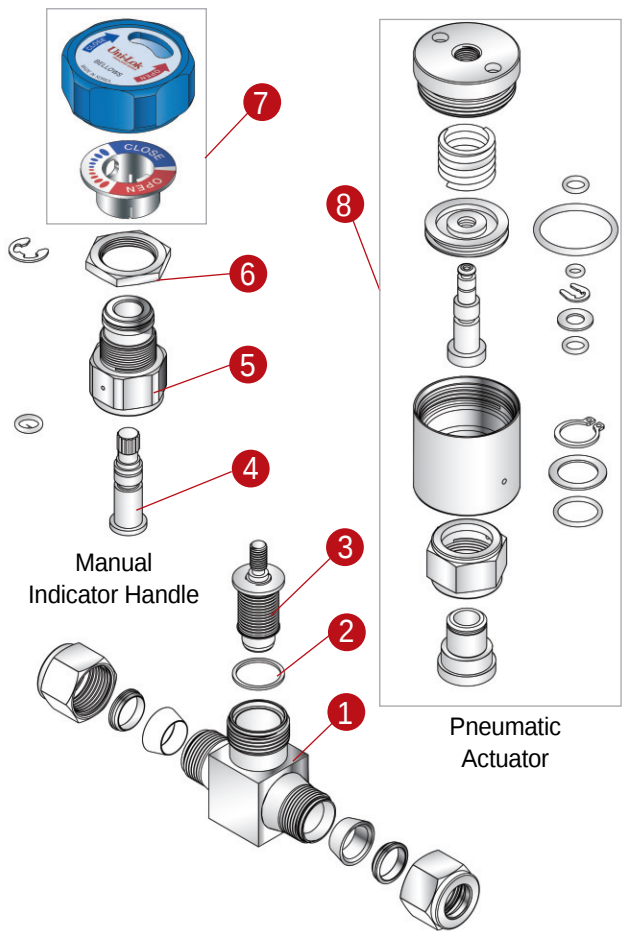
UNILOK 

Features

- Compact designed body with minimal dead space
- Body material comply with SEMI F-20, “Specification 316LSS Materials for UHP (Ultra High Purity) Grade Semiconductor Manufacturing Applications”
- Low actuation torque
- Minimal particle generation
- Minimal contributions of moisture, oxygen and hydrocarbon with Uni-Lok’s own special cleaning process in a certified clean room
- Excellent finish level of wetted areas with Uni-Lok’s own electro polish process
- 316LSS precision formed and electro-polished bellows for long cycle life
- PCTFE stem tip material with remarkable chemical and thermal resistance
- Both panel and bottom mounting available



Standard Type
Low Pressure Bellows Valves



Materials of Construction

No.	Description	Materials	
		Manual	Pneumatic
1	Body	316LSS	316LSS
2	Gasket	PCTFE	PCTFE
3	Bellows	316LSS	316LSS
4	Stem	316LSS	316LSS
5	Bonnet	316LSS	316LSS
6	Panel Nut	316SS	316SS
7	Handle	Aluminum	-
8	Actuator	-	Aluminum

Internal Surface Finish Levels

Designator	Surface Finish(μm)	
	Average	Maximum
BA	< 0.4	< 1.6
EP	< 0.125	< 0.4

Helium Leak Test

Every VCB series valves are inboard helium leak tested to a rate of 4×10^{-9} atm.cc/s at seat and all seals.

Particle Contribution Test

According to ASTM F1394-92.

Moisture Contribution Test

According to SEMA-90120397B-STD.

Cleaning

All components are precisely cleaned with $18M\Omega$ deionized water after the passivation procedure in accordance with our own UHP cleaning process
Reference specification : SEMI E49.6.

How To Order

Uni-Lok VCB series valves are ordered by part number as shown as below.

Assembling

According to SEMI E49.6.

Packaging

Each component is double bagged to ensure component cleanliness and to protect them from environmental contamination.

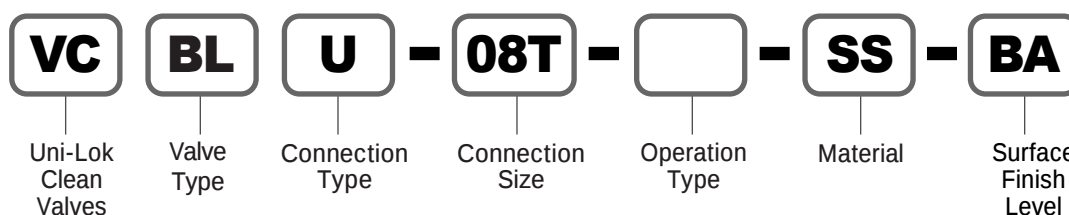
Referenced specification : SEMI E49.1.

Important Notification

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.

Overall process of testing, cleaning, assembling and packaging for every VCB series valves are performed in a certified clean room.

Example : The following part number, **VCBLU-08- - SS - BA** is designated for Low Pressure Bellows Valve, both 1/2" Uni-Lok Tube Fittings, 316LSS, BA.



Valve Type	
BL	Standard Low Pressure
BF	Forged Body

Connection Type	
U	Uni-Lok Tube Fitting
C-*M	Male UCR
C-*F	Female UCR
WB-*T	Butt Weld -Tube
WB-*P	Butt Weld - Pipe
FL	Flanged

Connection Size						
Fractional(Inch) Tube O.D. Designation						
Tube O.D.	inch	1/4	3/8	1/2	3/4	1
	mm	6.35	9.52	12.70	19.05	25.40
Designator		04	06	08	12	16

Pipe Size Designator		
Pipe Size	15A	20A 25A
Designator	15A	20A 25A

UCR (Metal Face Seal) Size Designator			
UCR Size	1/4	1/2	3/4
Designator	04M/04F	08M/08F	12M/12F

Operation Type	
None	Manual Indicator Handle
PO	Pneumatic - Normal Open
PC	Pneumatic - Normal Close

Material	
DM	316LSS - Double Melting
SM	316LSS - Single Melting
SS	316LSS

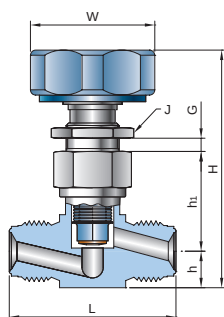
Surface Finish Level	
BA	BA
EP	EP - Electro Polished

VCBL series - 1/4"~1/2"

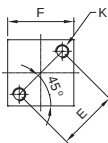
(Standard Type Low Pressure Bellows Valve - Manual Operation)

Specification

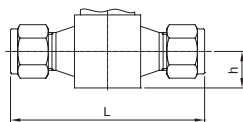
Size	1/4"	3/8", 1/2"
Orifice Size	4.3	8
Cv Value	0.3	0.7
Max. Working Pressure	10 bar (145 psig)	
Max. Working Temperature	-10~80°C (-23~176°F)	
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 4 \times 10^{-9}$ atm.cc/s	
External Leakage Allowance - He (Holding Time - Min 1 min)	$\leq 4 \times 10^{-9}$ atm.cc/s	



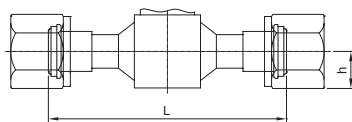
Male UCR



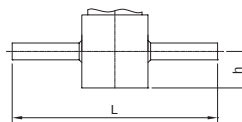
Bottom Mounting



Uni-Lok Tube Fitting



Female UCR



Tube Butt Weld

Handle Position



Open



Close

Ordering Information & Dimensions

Part Number		End Connection		Dimensions (mm)									
		Inlet	Outlet	L	h	h1	H	F	E	K	W(Ø)	G	J(Ø)
VCBL	U-04T-	1/4" Uni-Lok		64.2	13.8	37.7	90.0	25.0	23.0	M5	47.0	2.0	21.0
	U-06T-	3/8" Uni-Lok		77.6									
	U-08T-	1/2" Uni-Lok		83.0									
	C-04M-	1/4" Male UCR		58.0									
	C-08M-	1/2" Male UCR		63.0									
	C-04F-	1/4" Female UCR		70.5									
	C-08F-	1/2" Female UCR		90.0									
	WB-04T-	1/4" Tube Butt Weld		150.0									
	WB-06T-	3/8" Tube Butt Weld		150.0									
	WB-08T-	1/2" Tube Butt Weld		150.0									

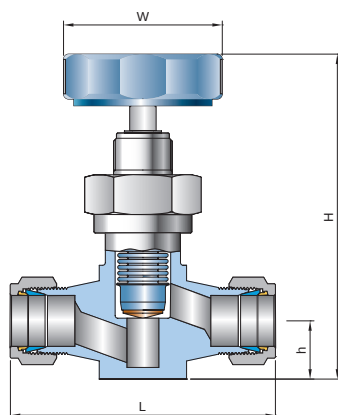
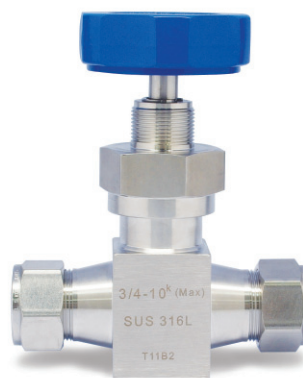
Dimensions are for reference only and are subject to change without prior notice.

VCBL series - 3/4"

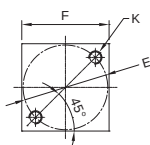
(Standard Type Low Pressure Bellows Valve - Manual Operation)

Specification

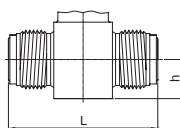
Size	3/4"
Orifice Size	12
Cv Value	2.6
Max. Working Pressure	10 bar (145 psig)
Max. Working Temperature	-10~80°C (-23~176°F)
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 4 \times 10^{-9}$ atm.cc/s
External Leakage Allowance - He (Holding Time - Min 1 min)	$\leq 4 \times 10^{-9}$ atm.cc/s



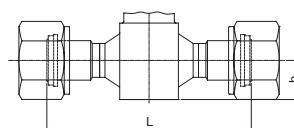
Uni-Lok Tube Fitting



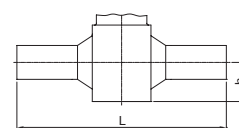
Bottom
Mounting



Male UCR



Female UCR



Tube Butt Weld

Ordering Information & Dimensions

Part Number		End Connection		Dimensions (mm)						
		Inlet	Outlet	L	h	H	F	E(Ø)	K	W(Ø)
VCBL	U-12T-	3/4" Uni-Lok		100.0	22.0	123.0	33.0	32.0	M5	60.0
	C-12M-	3/4" Male UCR		84.0						
	C-12F-	3/4" Female UCR		115.0						
	WB-12T-	3/4" Tube Butt Weld		158.0						

Dimensions are for reference only and are subject to change without prior notice.

VCBL series - 1/4"~1/2"

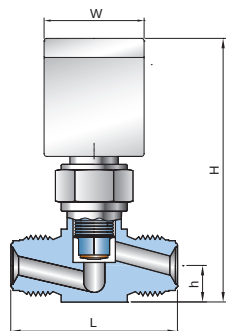
(Standard Type Low Pressure Diaphragm Valve -
Pneumatic Actuating Operation)

Specification

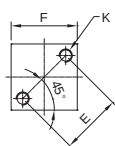
Size	1/4"	3/8", 1/2"
Orifice Size	4.3	8.0
Cv Value	0.3	0.7
Max. Working Pressure	10 bar (145 psig)	
Max. Working Temperature	-10~80°C (-23~176°F)	
Actuator Pressure Rating	4~7 bar (58~101 psig)	
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 4 \times 10^{-9}$ atm.cc/s	
External Leakage Allowance - He (Holding Time - Min 1 min)	$\leq 4 \times 10^{-9}$ atm.cc/s	



Actuator Configuration



Female UCR



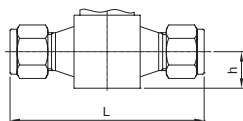
Bottom
Mounting



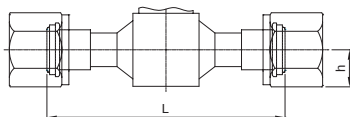
Normal Open



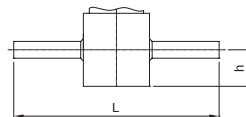
Normal Close



Uni-Lok Tube Fitting



Male UCR



Tube Butt Weld

Ordering Information & Dimensions

Part Number		End Connection		Dimensions (mm)						
		Inlet	Outlet	L	h	H	W(Ø)	F	E	K
VCBL	U-04T-	1/4" Uni-Lok		64.2	13.8	99.6	37.8	25.0	23.0	M5
	U-06T-	3/8" Uni-Lok		77.6						
	U-08T-	1/2" Uni-Lok		83.0						
	C-04M-	1/4" Male UCR		58.0						
	C-08M-	1/2" Male UCR		63.0						
	C-04F-	1/4" Female UCR		70.5						
	C-08F-	1/2" Female UCR		90.0						
	WB-04T-	1/4" Tube Butt Weld		150.0						
	WB-06T-	3/8" Tube Butt Weld		150.0						
	WB-08T-	1/2" Tube Butt Weld		150.0						

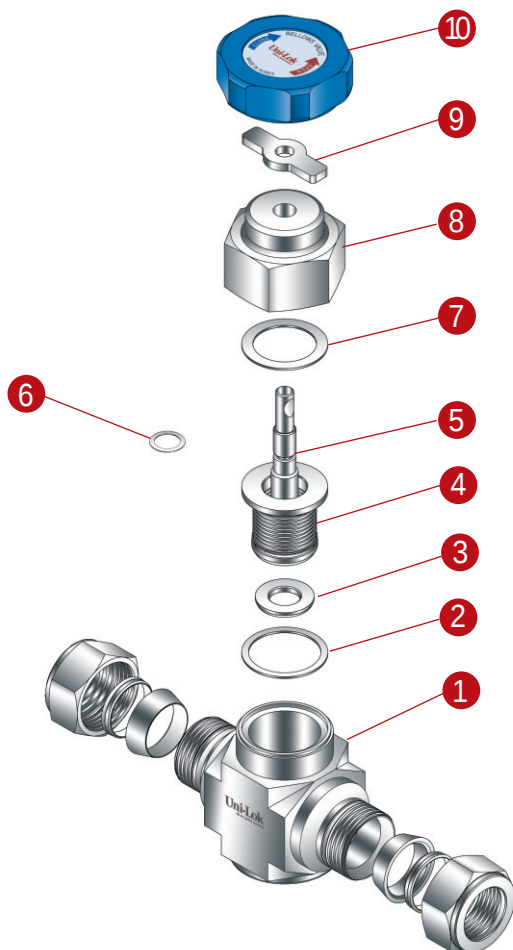
Dimensions are for reference only and are subject to change without prior notice.

VCBF series - 1", 15A, 20A, 25A

(Forged Body Low Pressure Diaphragm Valve - Manual Operation)

Specification

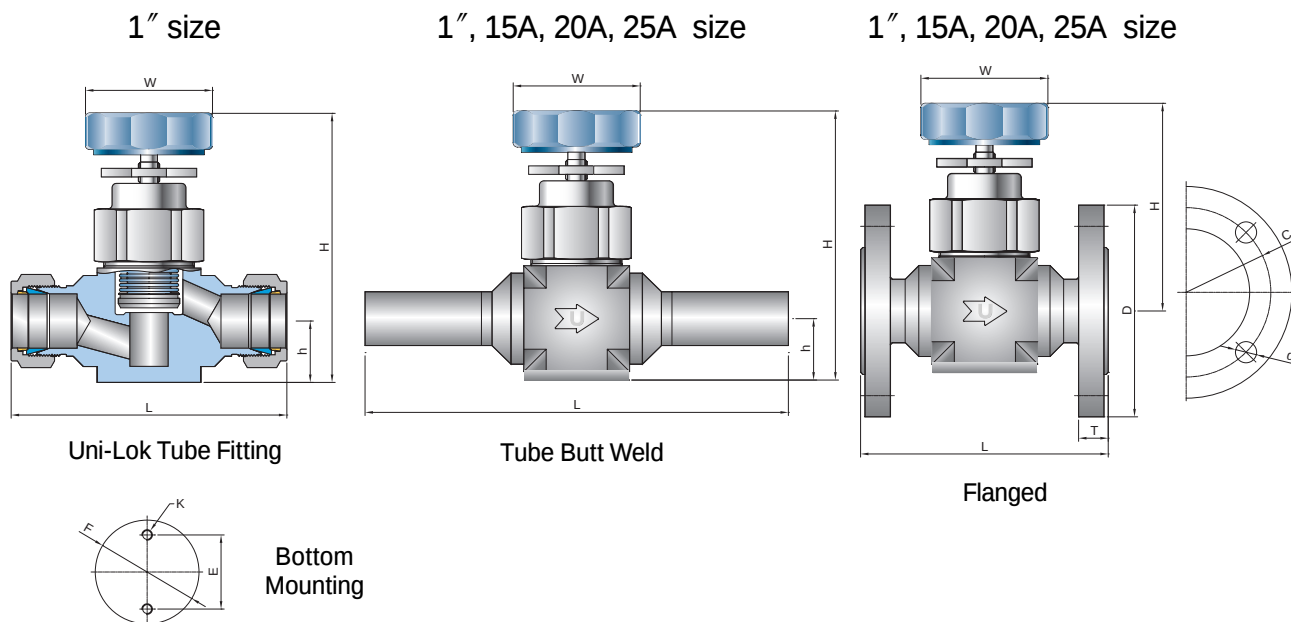
Size	1"	15A	20A	25A
Orifice Size	18	15	18	25
Cv Value	4.1	2.9	4.1	6.9
Max. Working Pressure	10 bar (145 psig)			
Max. Working Temperature	-10~80°C (-23~176°F)			
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 1 \times 10^{-5}$ atm.cc/s			
External Leakage Allowance - He (Holding Time - Min 1 min)	$\leq 1 \times 10^{-5}$ atm.cc/s			



Materials of Construction

No.	Description	Materials
1	Body	316LSS
2	Gasket	PCTFE
3	Disk	PTFE
4	Bellows	316LSS
5	Stem	316LSS
6	O-ring	Viton
7	Packing	PCTFE
8	Bonnet	316LSS
9	Stop Nut	Brass Ni coated
10	Handle	Aluminum

Dimensions are for reference only and are subject to change without prior notice.



Ordering Information & Dimensions

Uni-Lok Tube Fitting - 1" size

Part Number		End Connection		Dimensions (mm)						
		Inlet	Outlet	L	h	H	F(Ø)	E	K	W(Ø)
VCBF	U-16T-	1" Uni-Lok		130.2	29.0	127.0	49.0	35.0	M5	60.0

Tube Butt Weld - 1", 15A, 20A, 25A size

Part Number		End Connection		Dimensions (mm)			
		Inlet	Outlet	L	h	H	W(Ø)
VCBF	WB-16T-	1" Tube Butt Weld		200.0	29.0	127.0	60.0
	WB-15AP-	15A Pipe Butt Weld		200.0	24.0	117.0	
	WB-20AP-	20A Pipe Butt Weld		200.0	28.0	127.0	
	WB-25AP-	25A Pipe Butt Weld		210.0	33.0	143.0	

Flanged - 1", 15A, 20A, 25A size

Part Number		End Connection		Dimensions (mm)						
		Inlet	Outlet	L	H	W(Ø)	D(Ø)	C(Ø)	d(Ø)	T
VCBF	FL-16	1" Flanged		117.0	98.0	60.0	100.0	75.0	15.0	14.0
	FL-15A	15A Flanged		108.0	93.0		95.0	70.0	15.0	12.0
	FL-20A	20A Flanged		117.0	98.0		100.0	75.0	15.0	14.0
	FL-25A	25A Flanged		127.0	110.0		125.0	90.0	19.0	14.0

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UNILOK (주) 유니락



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본사 및 제1공장

인천광역시 남동구 고잔동 725-13번지
남동공단 152블럭 12로트 ☎ 405-822
전화 : 032-822-6600
팩스 : 032-822-6604

제2공장

인천광역시 남동구 고잔동 684-7번지
남동공단 114블럭 8로트 ☎ 405-818
전화 : 032-433-6601
팩스 : 032-441-7600

Headquarters & 1st Factory

152 Block-12 Lot, Namdong Indus-Park, 725-13,
Gojan-Dong, Namdong-Gu, Incheon, Korea
Tel : +82-32-821-6673
Fax : +82-32-822-6604

2nd Factory

114 Block-8 Lot, Namdong Indus-Park, 684-7,
Gojan-Dong, Namdong-Gu, Incheon, Korea
Tel : +82-32-433-6601
Fax : +82-32-441-7600