



ULTRA HIGH PURITY **BELLOWS VALVES**

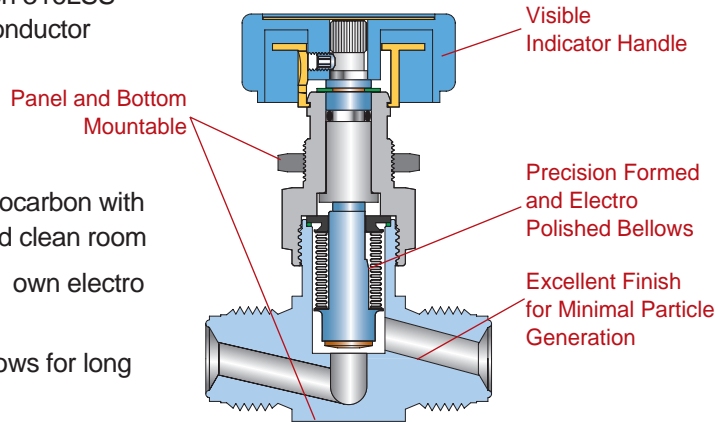
VCB Series

www.unilok.com

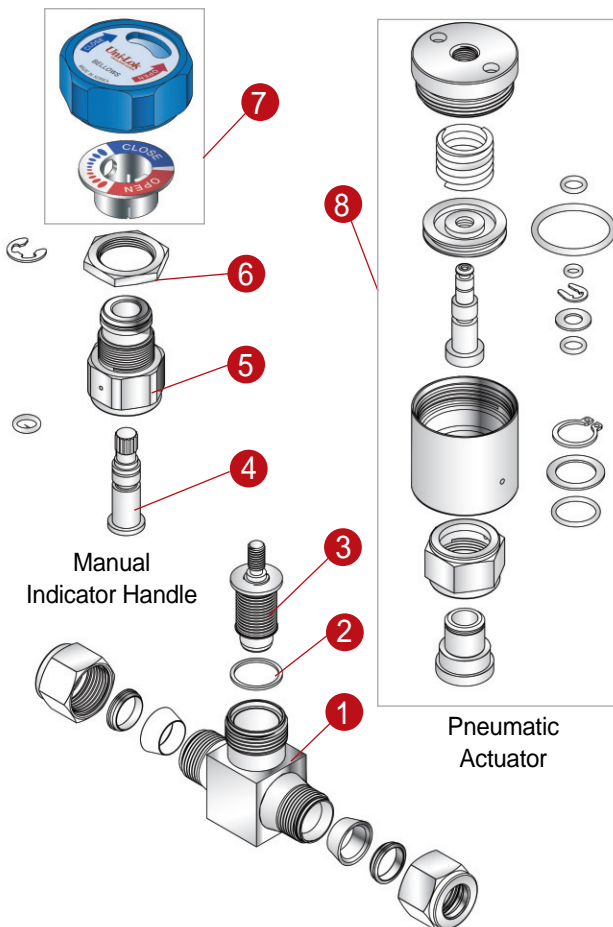


Features

- 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 Ω 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.

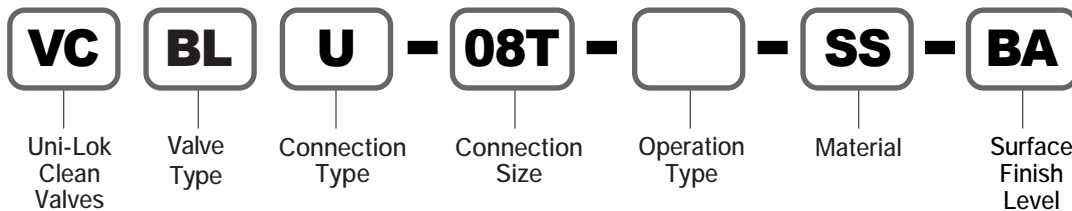
Referenced specification : SEMI E49.1.

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

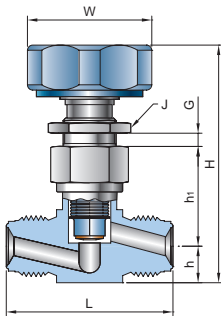
Surface Finish Level	
BA	BA
EP	EP - Electro Polished

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

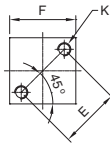
(Standard Type Low Pressure Bellows Valve - Manual Operation)

Specification

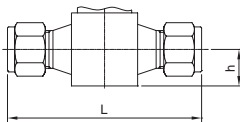
Size	1/4"	3/8", 1/2"
Orifice Size	4.3	8
Cv Value	0.3	0.7
Max. Working Pressure	10 bar (145 psig)	
Max. Working Temperature	-10~80°C (-23~176°F)	
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	≤4x10 ⁻⁹ atm.cc/s	
External Leakage Allowance - He (Holding Time - Min 1 min)	≤4x10 ⁻⁹ atm.cc/s	



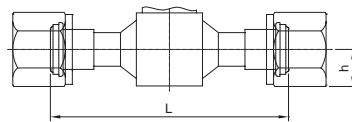
Male UCR



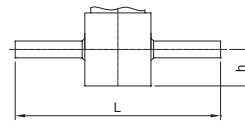
Bottom Mounting



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									

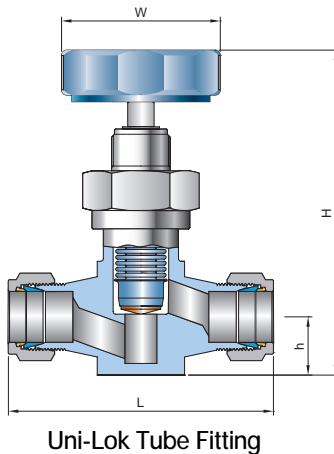
Dimensions are for reference only and are subject to change without prior notice.

VCBL series - 3/4"

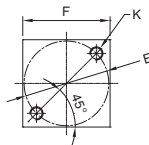
(Standard Type Low Pressure Bellows Valve - Manual Operation)

Specification

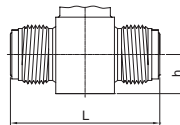
Size	3/4"
Orifice Size	12
Cv Value	2.6
Max. Working Pressure	10 bar (145 psig)
Max. Working Temperature	-10~80°C (-23~176°F)
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 4 \times 10^{-9}$ atm.cc/s
External Leakage Allowance - He (Holding Time - Min 1 min)	$\leq 4 \times 10^{-9}$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



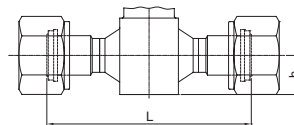
Uni-Lok Tube Fitting



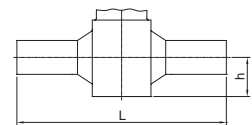
Bottom Mounting



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						

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

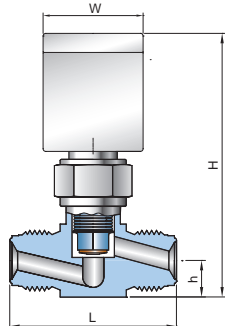
(Standard Type Low Pressure Diaphragm Valve - Pneumatic Actuating Operation)

Specification

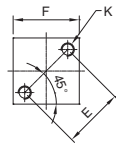
Size	1/4"	3/8", 1/2"
Orifice Size	4.3	8.0
Cv Value	0.3	0.7
Max. Working Pressure	10 bar (145 psig)	
Max. Working Temperature	-10~80°C (-23~176°F)	
Actuator Pressure Rating	4~7 bar (58~101 psig)	
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	≤4x10 ⁻⁹ atm.cc/s	
External Leakage Allowance - He (Holding Time - Min 1 min)	≤4x10 ⁻⁹ atm.cc/s	



Actuator Configuration



Female UCR



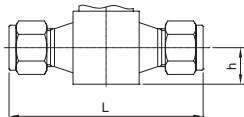
Bottom Mounting



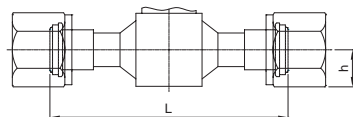
Normal Open



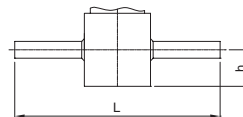
Normal Close



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							

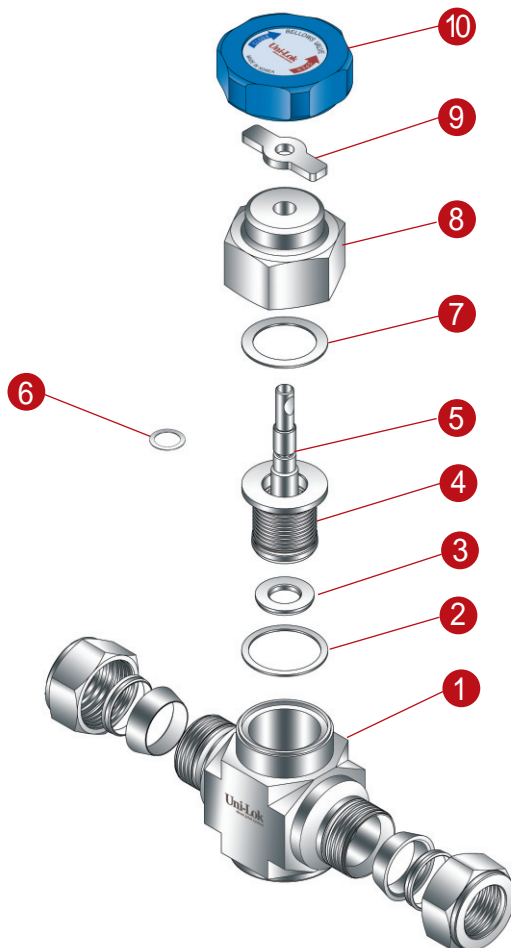
Dimensions are for reference only and are subject to change without prior notice.

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

(Forged Body Low Pressure Diaphragm Valve - Manual Operation)

Specification

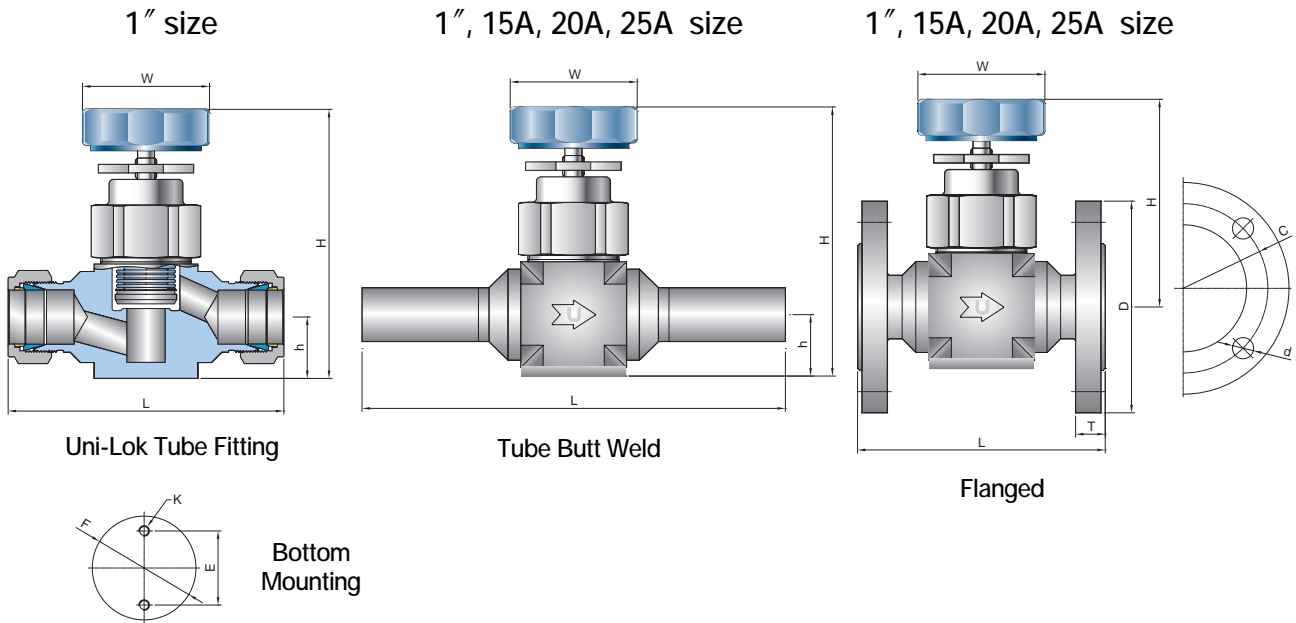
Size	1"	15A	20A	25A
Orifice Size	18	15	18	25
Cv Value	4.1	2.9	4.1	6.9
Max. Working Pressure	10 bar (145 psig)			
Max. Working Temperature	-10~80°C (-23~176°F)			
Internal Leakage Allowance - He (Holding Time - Min 30 sec)	$\leq 1 \times 10^{-5}$ atm.cc/s			
External Leakage Allowance - He (Holding Time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

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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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Uni-Lok® Uni-Lok corporation



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