



BEYOND FLUID

Beyond Fluid

Ultra High-Purity Diaphragm Valves



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LD Series Low Pressure Manual Diaphragm Valve

Features

Valve Body

SS316L VAR stainless steel double-melt material, used for ultra-pure applications. Inner surface roughness up to Ra 5µin, completely scannable flow path:

- Minimizes dead zones
- Facilitates purging
- Maximizes flow

Diaphragm

Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design for long service life.

Valve Seat

Fully enclosed seat design offers the following advantages:

- Excellent resistance to blistering and contamination
- Improved helium leak testing performance
- Minimal particle generation
- Long service life



High cleanliness assembly and packaging suitable for high purity semiconductor applications. Each product is helium leak tested.

Technical Data

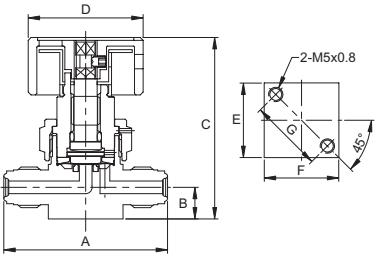
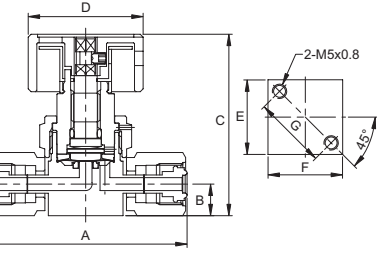
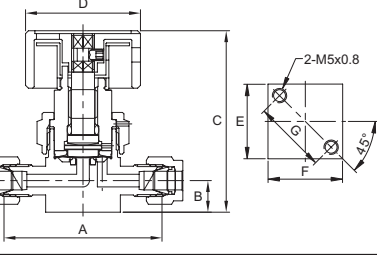
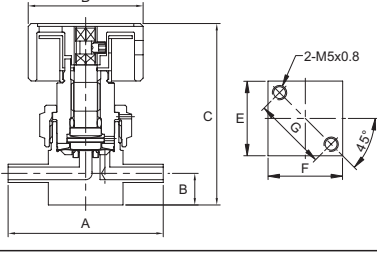
Key Specifications			
Fitting Size		1/4"	3/8", 1/2" 3/4"
Flow Coefficient(Cv)		0.27	0.7 1.7
Max Working Pressure		300 psig (20.7 bar)	
Temperature		PCTFE	-40°C - 80°C (-40°F - 176°F)
		PFA, Vespel	-26°C - 177°C (-15°F - 350°F)
Valve Internal Leakage Rate			1x10 ⁻⁹ sccs He
Valve External Leakage Rate			1x10 ⁻⁹ sccs He

Product Class			
Class		BA	EP SEP
Valve Body Material		SS 316L SS 316L VAR	
Internal Surface Roughness		Ra 10µin	Ra 5µin
Grinding		Mechanical	Electropolishing
Cleaning		Degreasing + Precision Cleaning	
Packaging		Single Layer	Double Layer

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Product Size

Dimensions are in mm, for reference only, and subject to change.

Model Series	Model	End Size	A	B	C	D	E	F	G
	LD4MS-VC	1/4"VCJ Male	57	11	63	40	25	26	25.4
	LD6MS-VC	3/8"VCJ Male	77	16	76	40	36	36	28
	LD8MS-VC	1/2"VCJ Male	77	16	76	40	36	36	28
	LD12MS-VC	3/4"VCJ Male	107	23	82.8	40	46	48	35
	LD4MS-VFC	1/4"VCJ Female	70.6	11	63	40	25	26	25.4
	LD6MS-VFC	3/8"VCJ Female	83	16	76	40	36	36	28
	LD8MS-VFC	1/2"VCJ Female	83	16	76	40	36	36	28
	LD12MS-VFC	3/4"VCJ Female	179.2	23	82.8	40	46	48	35
	LD4MS-TC	1/4" Fitting	48	11	63	40	25	26	25.4
	LD6MS-TC	3/8" Fitting	64	16	76	40	36	36	28
	LD8MS-TC	1/2" Fitting	64	16	76	40	36	36	28
	LD12MS-TC	3/4" Fitting	126	23	82.8	40	46	48	35
	LD4MS-BWC	1/4" Butt Weld	54	11	63	40	25	26	25.4
	LD6MS-BWC	3/8" Butt Weld	69	16	76	40	36	36	28
	LD8MS-BWC	1/2" Butt Weld	69	16	76	40	36	36	28
	LD12MS-BWC	3/4" Butt Weld	156	23	82.8	40	46	48	35

Ordering Information

Example: LD4MS-VC-EP-SS			
End Size	4 = 1/4" 6 = 3/8" 8 = 1/2" 12 = 3/4"	End Connection	V = VCJ Male VF = VCJ Female T = Tube Fitting BW = Butt Weld
Operating Instructions	M = 270° Manual	Valve Seat Material	C=PCTFE A= PFA VS =VespeI®
		Surface Finish	BA = Ra 10µin EP = Ra 5µin
Valve Shape	S = Straight A = Right Angle L = L Type	Valve Body/ Diaphragm Material	SS = 316L/SS316L SH = SS 316L /Hastelloy C-22 SVH = SS 316L VAR /Hastelloy C-22 SVE=SS316LVAR,Cobalt-based superalloy

LD Series Low Pressure Pneumatic Diaphragm Valve

Features

Valve Body

Made of SS316L VAR stainless steel with double melting process, suitable for ultra-high purity applications.

Internal surface roughness up to Ra 5µin, with fully cleanable flow paths:

- Minimizes dead volume
- Easy to purge
- Maximizes flow rate

Diaphragm

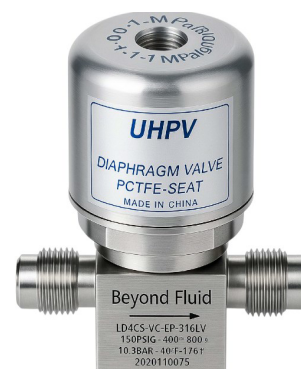
Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design ensures long service life.

Valve Seat

Fully enclosed valve seat design offers the following advantages:

- Excellent resistance to swelling and contamination
- Improved helium leak detection performance
- Minimal particle generation
- Long service life



Ultra-clean assembly and packaging suitable for high-purity semiconductor industry. Every product undergoes helium leak testing before shipment.

Technical Data

Key Specifications			
Fitting Size		1/4"	3/8", 1/2" 3/4"
Flow Coefficient(Cv)		0.27	0.7 1.7
Max Working Pressure		250 psig (17.2 bar)	
Temperature	PCTFE	-40°C - 80°C (-40°F - 176°F)	
	PFA, Vespel	-26°C - 177°C (-15°F - 350°F)	
Valve Internal Leakage Rate		1x10 ⁻⁹ sccs He	
Valve External Leakage Rate		1x10 ⁻⁹ sccs He	

Product Class			
Class	BA	EP	SEP
Valve Body Material	SS 316L		SS 316L VAR
Internal Surface Roughness	Ra 10µin	Ra 5µin	
Grinding	Mechanical	Electropolishing	
Cleaning	Degreasing + Precision Cleaning		
Packaging	Single Layer	Double Layer	

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Product Size

Dimensions are in mm, for reference only, and subject to change

Model Series	Model	End Size	A	B	C	D	E	F	G
	LD4CS-VC	1/4" VCJ Male	57	11	67	40	25	26	25.4
	LD4OS-VC		57	11	67	40	25	26	25.4
	LD6CS-VC	3/8" VCJ Male	77	16	84	55	36	36	28
	LD6OS-VC		77	16	77.5	55	36	36	28
	LD8CS-VC	1/2" VCJ Male	77	16	84	55	36	36	28
	LD8OS-VC		77	16	77.5	55	36	36	28
	LD12CS-VC	3/4" VCJ Male	107	23	148	85	46	48	35
	LD12OS-VC		107	23	143	85	46	48	35
	LD4CS-VFC	1/4" VCJ Female	70.6	11	67	40	25	26	25.4
	LD4OS-VFC		70.6	11	67	40	25	26	25.4
	LD6CS-VFC	3/8" VCJ Female	83	16	84	55	36	36	28
	LD6OS-VFC		83	16	77.5	55	36	36	28
	LD8CS-VFC	1/2" VCJ Female	83	16	84	55	36	36	28
	LD8OS-VFC		83	16	77.5	55	36	36	28
	LD12CS-VFC	3/4" VCJ Female	179.2	23	148	85	46	48	35
	LD12OS-VFC		179.2	23	143	85	46	48	35
	LD4CS-TC	1/4" Fitting	48	11	67	40	25	26	25.4
	LD4OS-TC		48	11	67	40	25	26	25.4
	LD6CS-TC	3/8" Fitting	64	16	84	55	36	36	28
	LD6OS-TC		64	16	77.5	55	36	36	28
	LD8CS-TC	1/2" Fitting	64	16	84	55	36	36	28
	LD8OS-TC		64	16	77.5	55	36	36	28
	LD12CS-TC	3/4" Fitting	126	23	148	85	46	48	35
	LD12OS-TC		126	23	143	85	46	48	35
	LD4CS-BWC	1/4" Butt Weld	54	11	67	40	25	26	25.4
	LD4OS-BWC		54	11	67	40	25	26	25.4
	LD6CS-BWC	3/8" Butt Weld	69	16	84	55	36	36	28
	LD6OS-BWC		69	16	77.5	55	36	36	28
	LD8CS-BWC	1/2" Butt Weld	69	16	84	55	36	36	28
	LD8OS-BWC		69	16	77.5	55	36	36	28
	LD12CS-BWC	3/4" Butt Weld	156	23	148	85	46	48	35
	LD12OS-BWC		156	23	143	85	46	48	35

Ordering Information

Example: LD4CS-VC-EP-SS			
End Size	4 = 1/4" 6 = 3/8" 8 = 1/2" 12 = 3/4"	End Connection	V = VCJ Male VF = VCJ Female T = Tube Fitting BW = Butt Weld
Operating Instructions	M = 270° Manual	Valve Seat Material	C = PCTFE A = PFA VS = Vespel®
		Surface Finish	BA = Ra 10µin EP = Ra 5µin
Valve Shape	S = Straight A = Right Angle L = L Type	Valve Body/ Diaphragm Material	SS = 316L/SS316L SH = SS 316L /Hastelloy C-22 SVH = SS 316L VAR /Hastelloy C-22 SVE = SS316LVAR, Cobalt-based superalloy

HD Series High Pressure Manual Diaphragm Valve

Features

Valve Body

Made of SS316L VAR stainless steel with double melting process, suitable for ultra-high purity applications.

Internal surface roughness up to Ra 5µin, with fully cleanable flow paths:

- Minimizes dead volume
- Facilitates purging
- Maximizes flow rate

Diaphragm

Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design ensures long service life.

Valve Seat

Fully enclosed valve seat design offers the following advantages:

- Excellent resistance to swelling and contamination
- Improved helium leak detection performance
- Minimal particle generation
- Long service life



High-clean assembly and packaging suitable for ultra-pure semiconductor industry. Every product undergoes helium leak testing before shipment.

Technical Data

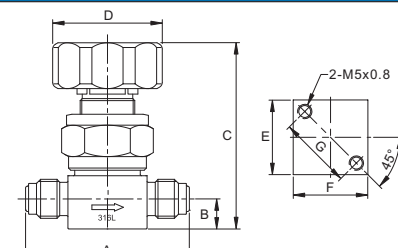
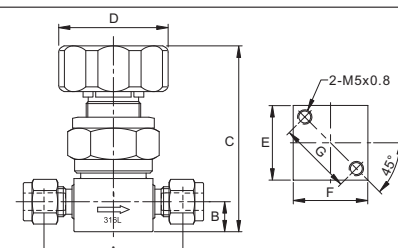
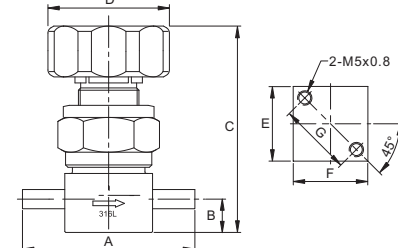
Key Specifications			
End Size		1/4", 3/8", 1/2"	
Flow Coefficient (Cv)		0.27	
Max Working Pressure		3500 psig (241 bar)	
Temperature	PCTFE	-40°C - 80°C (-40°F - 176°F)	
	PFA, Vespel	-26°C - 177°C (-15°F - 350°F)	
Internal Leakage Rate		1x10 ⁻⁹ sccs He	
External Leakage Rate		1x10 ⁻⁹ sccs He	

Product Class			
Class	BA	EP	SEP
Valve Body Material	SS 316L		SS 316L VAR
Internal Surface Roughness	Ra 10µin	Ra 5µin	
Grinding	Mechanical	Electropolishing	
Cleaning	Degreasing + Precision Cleaning		
Packaging	Single Layer	Double Layer	

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Product Size

Dimensions are in mm, for reference only, and subject to change

Model Series	Model	End Size	A	B	C	D	E	F	H
	HD4MS-VC	1/4"VCJ Male	60	11.1	73.7	48	28.6	29	25.4
	HD4MS-VFC	1/4"VCJ Female	76.6	11.1	73.7	48	28.6	29	25.4
	HD4MS-TC	1/4" Fitting	49.7	11.1	73.7	48	28.6	29	25.4
	HD4MS-TC	3/8" Fitting	51.7	11.1	73.7	48	28.6	29	25.4
	HD4MS-BWC	1/4" Butt Weld	48.2	11.1	73.7	48	28.6	29	25.4
	HD6MS-BWC	3/8" Butt Weld	48.2	11.1	73.7	48	28.6	29	25.4
	HD8MS-BWC	1/2" Butt Weld	48.2	11.1	73.7	48	28.6	29	25.4

Ordering Information

Example: HD4MS-VC-EP-SS			
End Size	4 = 1/4" 6 = 3/8" 8 = 1/2" 12 = 3/4"	End Connection	V = VCJ Male VF = VCJ Female T = Tube Fitting BW = Butt Weld
Operating Instructions	M = 270° Manual	Valve Seat Material	C=PCTFE A= PFA VS =Vespel®
		Surface Finish	BA = Ra 10µin EP = Ra 5µin
Valve Shape	S = Straight A = Right Angle L = L Type	Valve Body/ Diaphragm Material	SS = 316L/SS316L SH = SS 316L /Hastelloy C-22 SVH = SS 316L VAR /Hastelloy C-22 SVE=SS316LVAR, Cobalt-based superalloy

HD Series High Pressure Pneumatic Diaphragm Valve

Features

Valve Body

Made of SS316L VAR stainless steel with double melting process, suitable for ultra-high purity applications.

Internal surface roughness up to Ra 5µin, with fully cleanable flow paths:

- Minimizes dead volume
- Easy to purge
- Maximizes flow rate

Diaphragm

Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design ensures long service life.

Valve Seat

Fully enclosed valve seat design offers the following advantages:

- Excellent resistance to swelling and contamination
- Improved helium leak detection performance
- Minimal particle generation
- Long service life



Ultra-clean assembly and packaging suitable for high-purity semiconductor industry. Every product undergoes helium leak testing before shipment.

Technical Data

Key Specifications			
End Size		1/4", 3/8", 1/2"	
Flow Coefficient (Cv)		0.27	
Max Working Pressure		3500 psig (241 bar)	
Temperature	PCTFE	-40°C - 80°C (-40°F - 176°F)	
	PFA , Vespel	-26°C - 177°C (-15°F - 350°F)	
Internal Leakage Rate		1x10 ⁻⁹ sccs He	
External Leakage Rate		1x10 ⁻⁹ sccs He	

Product Class			
Class	BA	EP	SEP
Valve Body Material	SS 316L		SS 316L VAR
Internal Surface Roughness	Ra 10µin	Ra 5µin	
Grinding	Mechanical	Electropolishing	
Cleaning	Degreasing + Precision Cleaning		
Packaging	Single Layer	Double Layer	

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Product Size

Dimensions are in mm, for reference only, and subject to change

Model Series	Model	End Size	A	B	C	D	E	F	G
	HD4CS-VC	1/4" VCJ Male	60	11.1	99	40	28.6	29	25.4
	HD4CS-VFC	1/4" VCJ Female	76.6	11.1	99	40	28.6	29	25.4
	HD4CS-TC	1/4" Fitting	49.7	11.1	99	40	28.6	29	25.4
	HD4CS-TC	3/8" Fitting	51.7	11.1	99	40	28.6	29	25.4
	HD4CS-BWC	1/4" Butt Weld	48.2	11.1	99	40	28.6	29	25.4
	HD6CS-BWC	3/8" Butt Weld	48.2	11.1	99	40	28.6	29	25.4
	HD8CS-BWC	1/2" Butt Weld	48.2	11.1	99	40	28.6	29	25.4

Ordering Information

Example: HD4CS-VC-EP-SS			
End Size	4 = 1/4" 6 = 3/8" 8 = 1/2" 12 = 3/4"	End Connection	V = VCJ Male VF = VCJ Female T = Tube Fitting BW = Butt Weld
Operating Instructions	M = 270° Manual	Valve Seat Material	C = PCTFE A = PFA VS = Vespel®
		Surface Finish	BA = Ra 10µin EP = Ra 5µin
Valve Shape	S = Straight A = Right Angle L = L Type	Valve Body/ Diaphragm Material	SS = 316L/SS316L SH = SS 316L /Hastelloy C-22 SVH = SS 316L VAR /Hastelloy C-22 SVE = SS316LVAR, Cobalt-based superalloy

B23 Series Two-body Three-way Manual Diaphragm Valve

Features

Valve Body

SS316L VAR stainless steel valve body material, used for ultra-high purity applications. Internal surface roughness up to Ra 5µin, ensuring a fully clean flow path.

Combines two LD series diaphragm valves into one, maximizing common flow capacity, minimizing dead zones, and enhancing degassing performance.

While maintaining the basic performance of the original valve, it allows combinations of similar or different types to design the most compact piping system.

The flow system, piping layout, fitting types, and connection types can be selected based on the piping layout.

Special multi-connection diaphragm valves of three or more connections can be designed and manufactured.

Diaphragm

Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design ensures long service life.



Valve Seat

Fully enclosed valve seat design offers the following advantages:

- Excellent resistance to bubble generation and contamination
- Enhanced helium leak test performance
- Minimal particle generation
- Long service life

High-cleanliness assembly and packaging suitable for semiconductor production with high purity requirements.

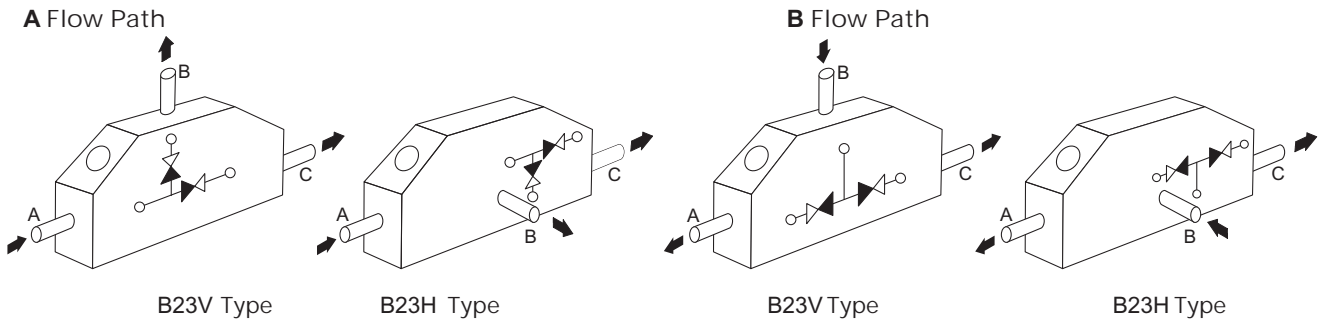
Every product shipped has passed helium leak testing.

Key Specifications			
End Size		1/4"	3/8", 1/2"
Flow Coefficient(Cv)		0.22	0.7
Max Working Pressure		Low Pressure: 300 pisp (20.7bar), High Pressure: 3500 pisp (241bar)	
Temperature	PCTFE	-40°C - 80°C (-40°F - 176°F)	
	PFA , Vespel	-26°C - 177°C (-15°F - 350°F)	
Internal Leakage Rate		1x10 ⁻⁹ sccs He	
External Leakage Rate		1x10 ⁻⁹ sccs He	

Product Class			
Class	BA	EP	SEP
Valve Body Material	SS 316L		SS 316L VAR
Internal Surface Roughness	Ra 10µin	Ra 5µin	
Grinding	Mechanical	Electropolishing	
Cleaning	Degreasing + Precision Cleaning		
Packaging	Single Layer	Double Layer	

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Internal flow path



Product Size

Dimensions are in mm, for reference only, and subject to change

Model Series	Model	End Size	L	H	H1	A	A1	B	T1	C	W	T
	B23V	1/4"VCJ	107.6	72	11	41	122	64	26	53.8	40	15
	B23V	1/2"VCJ	143	87	16	41	142	97	36	71.5	70	20
	B23H	1/4"VCJ	107.6	72	11	41	122	64	26	34.8	40	15
	B23H	1/2"VCJ	143	87	16	41	142	97	36	41	70	20

Ordering Information

Example: B23V-LD4M-VFC-A-EP-SS			
Port orientation	V = vertical	End connection type	V = VCJ Male
	H = Horizontal		VF = VCJ Female
Model Series	LD=low pressure manual diaphragm valve	Valve seat material	C = PCTFE
	HD=high pressure manual diaphragm valve		A = PFA
End Size	4 = 1/4"	Flow Path	A = A flow path
	6 = 3/8"		B = B flow path
Operation method	M = 270°Manual	Surface Finish	BA = Ra 10µin
			EP = Ra 5µin
Valve body/ diaphragm material			SS = 316L/SS316L
			SH = SS 316L /Hastelloy C-22
			SVH = SS 316L VAR /Hastelloy C-22
			SVE=SS316LVAR,Cobalt-based superalloy

B23 Series

Two-body Three-way Pneumatic Diaphragm Valve

Features

Valve Body

SS316L VAR stainless steel valve body material, used for ultra-high purity applications. Internal surface roughness up to Ra 5µin, ensuring a fully clean flow path.

Combines two LD series diaphragm valves into one, maximizing common flow capacity, minimizing dead zones, and enhancing degassing performance.

While maintaining the basic performance of the original valve, it allows combinations of similar or different types to design the most compact piping system.

The flow system, piping layout, fitting types, and connection types can be selected based on the piping layout.

Special multi-connection diaphragm valves of three or more connections can be designed and manufactured.

Diaphragm

Cobalt-based superalloy (UNS R30003) provides high strength and corrosion resistance.

Optimized design ensures long service life.



Valve Seat

Fully enclosed valve seat design offers the following advantages:

- Excellent resistance to bubble generation and contamination
- Enhanced helium leak test performance
- Minimal particle generation
- Long service life

High-cleanliness assembly and packaging suitable for semiconductor production with high purity requirements.

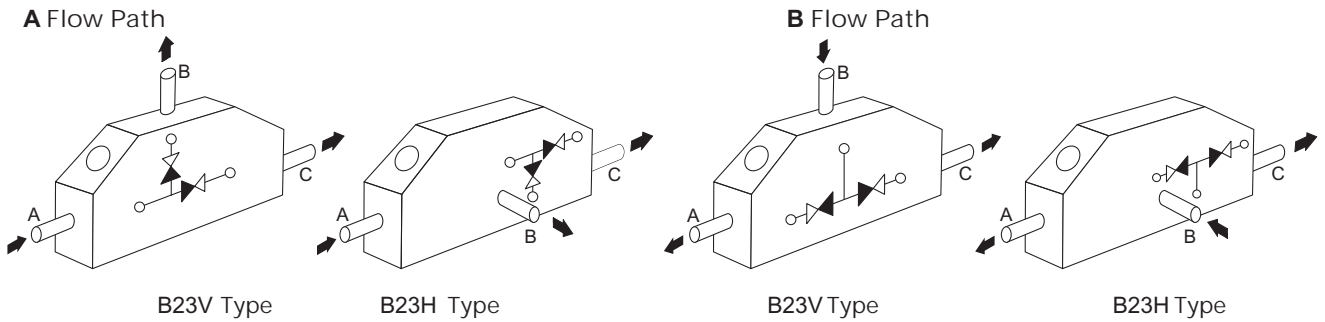
Every product shipped has passed helium leak testing.

Key Specifications		
End Size	1/4"	3/8", 1/2"
Flow Coefficient(Cv)	0.22	0.7
Max Working Pressure	Low Pressure: 300 psig (20.7bar), High Pressure: 3500 psig (241bar)	
Temperature	PCTFE	-40°C - 80°C (-40°F - 176°F)
	PFA , Vespel	-26°C - 177°C (-15°F - 350°F)
Internal Leakage Rate	1x10 ⁻⁹ sccs He	
External Leakage Rate	1x10 ⁻⁹ sccs He	

Product Class			
Class	BA	EP	SEP
Valve Body Material	SS 316L		SS 316L VAR
Internal Surface Roughness	Ra 10µin	Ra 5µin	
Grinding	Mechanical	Electropolishing	
Cleaning	Degreasing + Precision Cleaning		
Packaging	Single Layer	Double Layer	

Product Material	
Body	SS 316L/A479, SS 316L VAR/SEMI F20-0305
Diaphragm	SS 316L, Hastelloy® C-22, Cobalt-based superalloy
Valve Seat	PCTFE, PFA, Vespel

Internal flow path



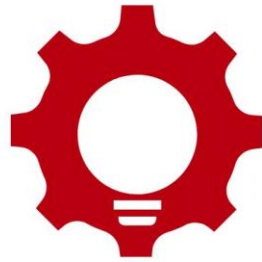
Product Size

Dimensions are in mm, for reference only, and subject to change

Model Series	Model	End Size	L	H	H1	A	A1	B	T1	C	W	T
	B23V	1/4"VCJ	107.6	72	11	41	122	64	26	53.8	40	15
	B23V	1/2"VCJ	143	87	16	41	142	97	36	71.5	70	20
	B23H	1/4"VCJ	107.6	72	11	41	122	64	26	34.8	40	15
	B23H	1/2"VCJ	143	87	16	41	142	97	36	41	70	20

Ordering Information

Example: B23V-LD4C VFC-A-EP-SS			
Port orientation	V = vertical	End connection type	V = VCJ Male
	H = Horizontal		VF = VCJ Female
Model Series	LD=low pressure manual diaphragm valve	Valve seat material	C = PCTFE
	HD=high pressure manual diaphragm valve		A = PFA
End Size	4 = 1/4"	Flow Path	A = A flow path
	6 = 3/8"		B = B flow path
Operation method	M = 270°Manual	Surface Finish	BA = Ra 10µin
			EP = Ra 5µin
Valve body/ diaphragm material			SS = 316L/SS316L
			SH = SS 316L /Hastelloy C-22
			SVH = SS 316L VAR /Hastelloy C-22
			SVE=SS316LVAR, Cobalt-based superalloy



BEYOND FLUID

Beyond Fluid

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