

Ultra high purity diaphragm valve



LD series

low-pressure manual diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
3. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
4. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel, minimize the interception area, and maximize the flow rate;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications			
End Connection Specs	1/4"	3/8",1/2"	3/4"
Flow coefficient (Cv)	0.27	0.7	1.7
Max Working Pressure	250psig (17.2bar)		
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)	
	PFA,Vespe ^l	-26°C-177°C (-15°F-350°F)	
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		

Product Grade			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)	Ra 0.13μm(5μin.)	
Grind	Mechanical Grinding Processing	Electrolytic grinding processing	
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

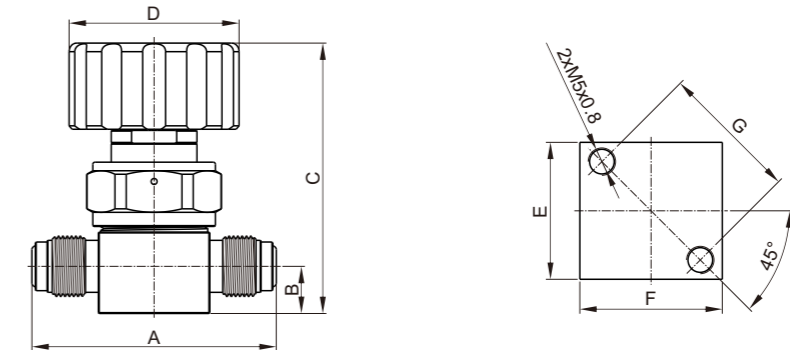
Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespe ^l

Size table

The size is for reference only and may be subject to change.

VCR

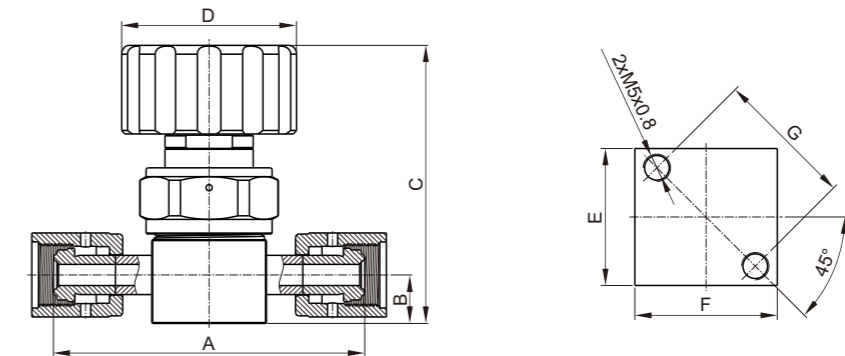
male thread



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4MS-VC	1/4"VCR male thread	57	11	63	40	25	26	25.4
LD8MS-VC	1/2"VCR male thread	77	16	76	40	36	36	28

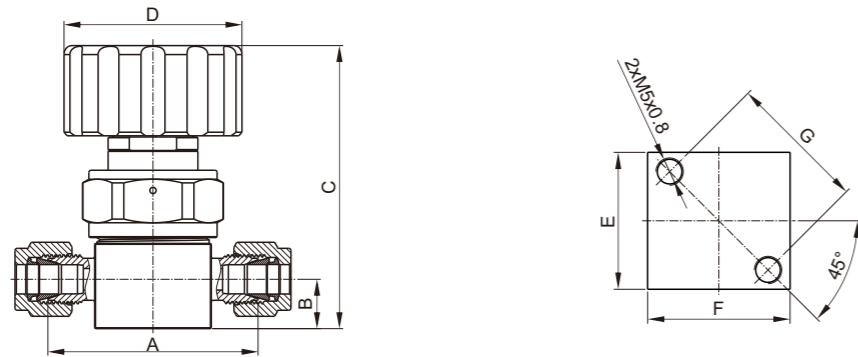
VCR

female thread



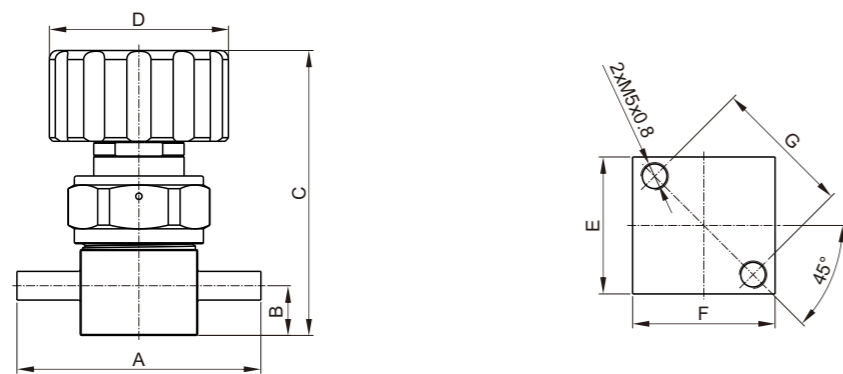
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4MS-VFC	1/4"VCR female thread	70.6	11	63	40	25	26	25.4
LD8MS-VFC	1/2"VCR female thread	83	16	76	40	36	36	28

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4MS-TC	1/4"card sleeve connector	48	11	63	40	25	26	25.4
LD6MS-TC	3/8"card sleeve connector	64	16	76	40	36	36	28
LD8MS-TC	1/2"card sleeve connector	64	16	76	40	36	36	28

Tube
butt welding



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4MS-BWC	1/4"Tube butt welding joint	54	11	63	40	25	26	25.4
LD6MS-BWC	3/8"Tube butt welding joint	69	16	76	40	36	36	28
LD8MS-BWC	1/2"Tube butt welding joint	69	16	76	40	36	36	28

Ordering Information

Example

LD	4	M	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series
LD

2 End Connection Size
4 6 8
1/4" 3/8" 1/2"

3 Operation Method
M
270° hand movement

4 Valve Shape
S A L
straight through right angle L-type

5 End Connection Specs
V VF T BW
VCR male thread VCR female thread GBO-LOK card sleeve connector Tube butt welding

6 Valve Seat Material
C A VS
PCTFE PFA Vespel®

7 Surface Smoothness Options
BA EP
Ra 0.25µm(10µin.) Ra 0.13µm(5µin.)

8 valve body/diaphragm Material
6L SH SVH SVE
SS316L / SS316L SS316L / Hastelloy® C-22 SS316L VAR / Hastelloy® C-22 SS316L VAR / cobalt based superalloys

HLD series

high flow low-pressure manual diaphragm valve

Feature

1. There is no spring inside, and the valve seat and diaphragm are welded together;
2. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
3. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
4. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel, minimize the interception area, and maximize the flow rate;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications			
End Connection Specs	1/2"	3/4"	1"
Flow coefficient (Cv)	2.8	3.5	3.5
Max Working Pressure	250psig (17.2bar)		
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)	
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)	
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		

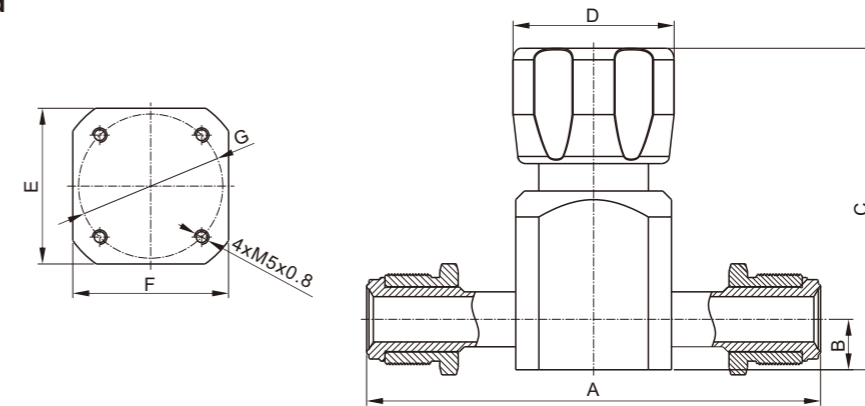
Product Grade			
Grade	BA	EP	SEP
Body Material	SS 316L		SS 316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

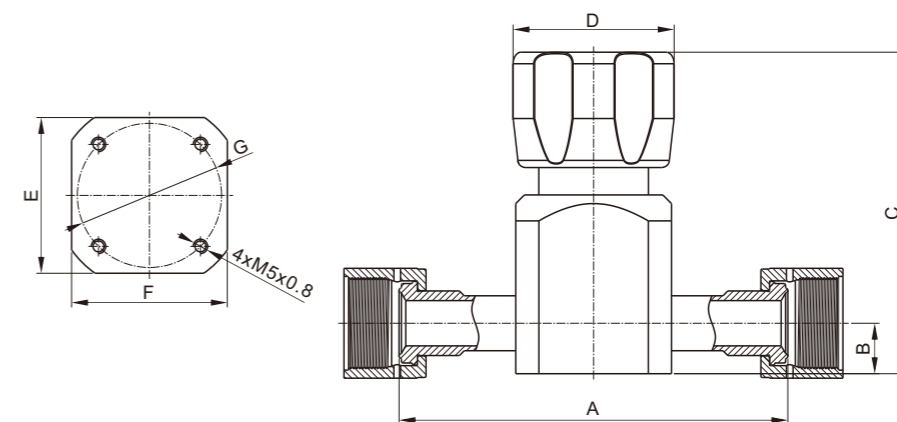
The size is for reference only and may be subject to change.

VCR male thread



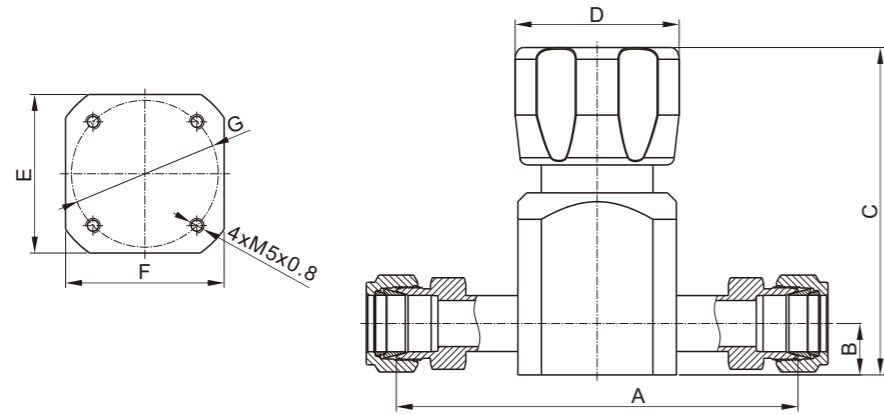
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8MS-VC	1/2"VCR male thread	134	17.5	108.8	58	54	54	50
HLD12MS-VC	3/4"VCR male thread	134	17.5	111.5	58	54	54	50
HLD16MS-VC	1"VCR male thread	134	20.5	117.5	58	54	54	50

VCR female thread



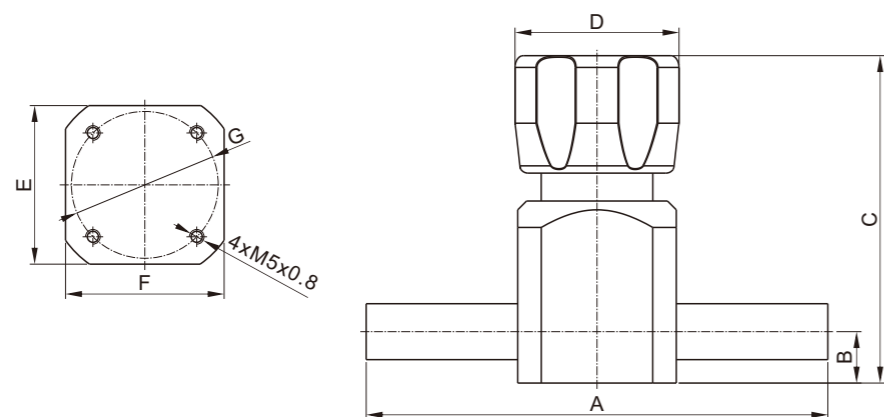
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8MS-VFC	1/2"VCR female thread	124.4	17.5	108.8	58	54	54	50
HLD12MS-VFC	3/4"VCR female thread	134.8	17.5	111.5	58	54	54	50
HLD16MS-VFC	1"VCR female thread	141	20.5	117.5	58	54	54	50

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8MS-TC	1/2"card sleeve connector	119.6	17.5	108.8	58	54	54	50
HLD12MS-TC	3/4"card sleeve connector	157.2	17.5	111.5	58	54	54	50
HLD16MS-TC	1"card sleeve connector	171.8	20.5	117.5	58	54	54	50

Tube
butt welding



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8MS-BWC	1/2"Tube butt welding joint	119.6	17.5	108.8	58	54	54	50
HLD12MS-BWC	3/4"Tube butt welding joint	157.2	17.5	111.5	58	54	54	50
HLD16MS-BWC	1"Tube butt welding joint	171.8	20.5	117.5	58	54	54	50

Ordering Information

Example

HLD	12	M	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series

HLD

2 End Connection Size

8	12	16
1/2"	3/4"	1"

3 Operation Method

M

270° hand movement

4 Valve Shape

S	A	L
straight through	right angle	L-type

5 End Connection Specs

V	VF	T	BW
VCR male thread	VCR female thread	GBO-LOK card sleeve connector	Tube butt welding

6 Valve Seat Material

C	A	VS
PCTFE	PFA	Vespel®

7 Surface Smoothness Options

BA	EP
Ra 0.25µm(10µin.)	Ra 0.13µm(5µin.)

8 valve body/diaphragm Material

6L	SH	SVH	SVE
SS316L / SS316L	SS316L / Hastelloy® C-22	SS316L VAR / Hastelloy® C-22	SS316L VAR / cobalt based superalloys

LD series

low-pressure pneumatic high-purity diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
3. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
4. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel, minimize the interception area, and maximize the flow rate;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications			
End Connection Specs	1/4"	3/8",1/2"	3/4"
Flow coefficient (Cv)	0.27	0.7	1.7
Max Working Pressure	250psig (17.2bar)		
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)	
	PFA,Vespe®	-26°C-177°C (-15°F-350°F)	
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		

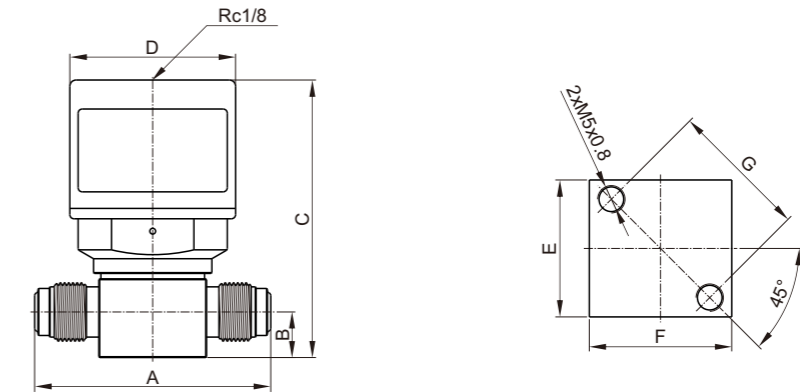
Body Material			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespe®

Size table

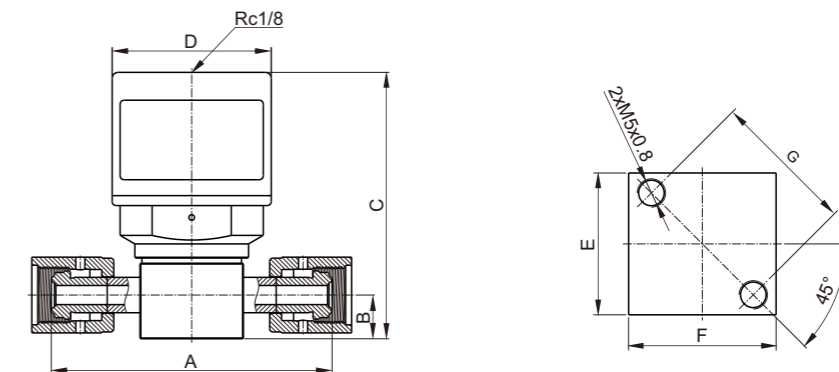
The size is for reference only and may be subject to change.

VCR male thread



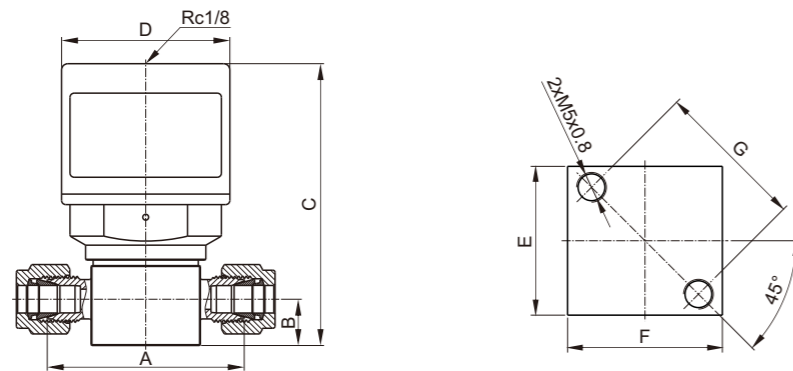
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4CS-VC	1/4"VCR male thread	57	11	67	40	25	26	25.4
LD4OS-VC		57	11	67	40	25	26	25.4
LD8CS-VC	1/2"VCR male thread	77	16	84	55	36	36	28
LD8OS-VC		77	16	77.5	55	36	36	28

VCR female thread



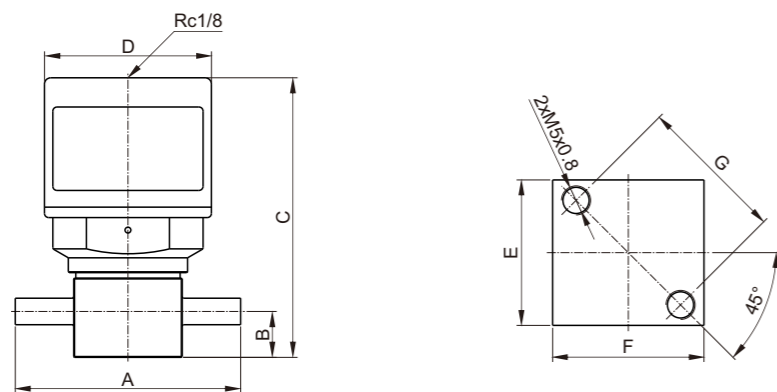
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4CS-VFC	1/4"VCR female thread	70.6	11	67	40	25	26	25.4
LD4OS-VFC		70.6	11	67	40	25	26	25.4
LD8CS-VFC	1/2"VCR female thread	83	16	84	55	36	36	28
LD8OS-VFC		83	16	77.5	55	36	36	28

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4CS-TC	1/4"card sleeve connector	48	11	67	40	25	26	25.4
LD4OS-TC		48	11	67	40	25	26	25.4
LD6CS-TC	3/8"card sleeve connector	64	16	84	55	36	36	28
LD6OS-TC		64	16	77.5	55	36	36	28
LD8CS-TC	1/2"card sleeve connector	64	16	84	55	36	36	28
LD8OS-TC		64	16	77.5	55	36	36	28

**Tube
butt welding**



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
LD4CS-BWC	1/4"Tube butt welding	54	11	67	40	25	26	25.4
LD4OS-BWC		54	11	67	40	25	26	25.4
LD6CS-BWC	3/8"Tube butt welding	69	16	84	55	36	36	28
LD6OS-BWC		69	16	77.5	55	36	36	28
LD8CS-BWC	1/2"Tube butt welding	69	16	84	55	36	36	28
LD8OS-BWC		69	16	77.5	55	36	36	28

Ordering Information

Example

LD	4	C	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series

LD

2 End Connection Size

4	6	8
1/4"	3/8"	1/2"

3 Operation Method

C	O
Pneumatic normally closed	Pneumatic normally open

4 Valve Shape

S	A	L
straight through	right angle	L-type

5 End Connection Specs

V	VF	T	BW
VCR male thread	VCR female thread	GBO-LOK card sleeve connector	Tube butt welding

6 Valve Seat Material

C	A	VS
PCTFE	PFA	Vespe [®]

7 Surface Smoothness Options

BA	EP
Ra 0.25µm(10µin.)	Ra 0.13µm(5µin.)

8 valve body/diaphragm Material

6L	SH	SVH	SVE
SS316L / SS316L	SS316L / Hastelloy [®] C-22	SS316L VAR / Hastelloy [®] C-22	SS316L VAR / cobalt based superalloys

HLD series high flow low-pressure pneumatic high-purity diaphragm valve

Feature

1. There is no spring inside, and the valve seat and diaphragm are welded together;
2. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
3. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
4. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel, minimize the interception area, and maximize the flow rate;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications			
End Connection Specs	1/2"	3/4"	1"
Flow coefficient (Cv)	2.8	3.5	3.5
Max Working Pressure	250psig (17.2bar)		
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)	
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)	
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		

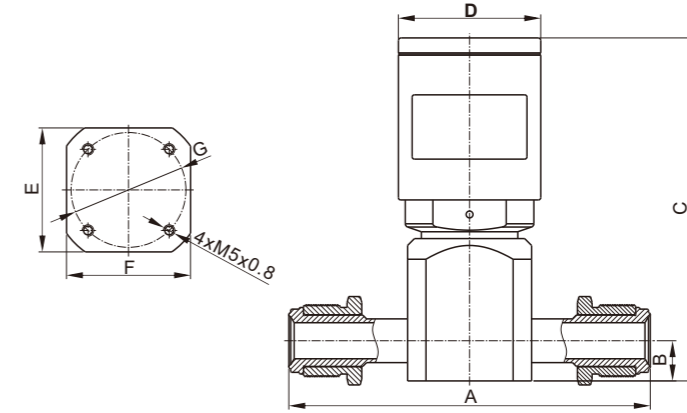
Body Material			
Grade	BA	EP	SEP
Body Material	SS 316L		SS 316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)	Ra 0.13μm(5μin.)	
Grind	Mechanical Grinding Processing	Electrolytic grinding processing	
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

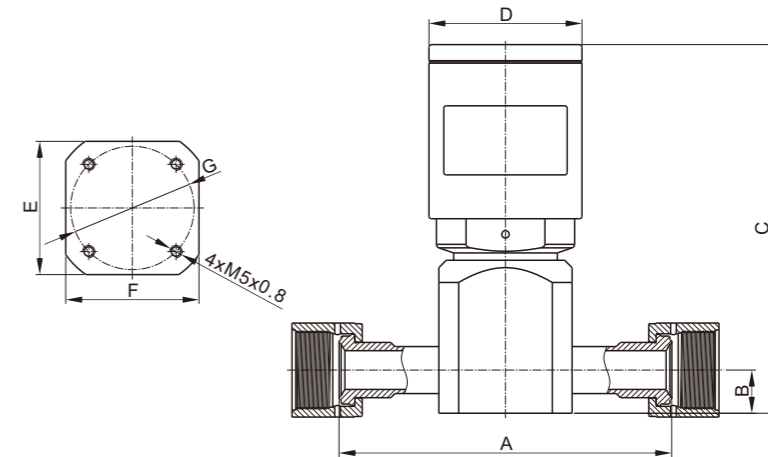
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VCR male thread



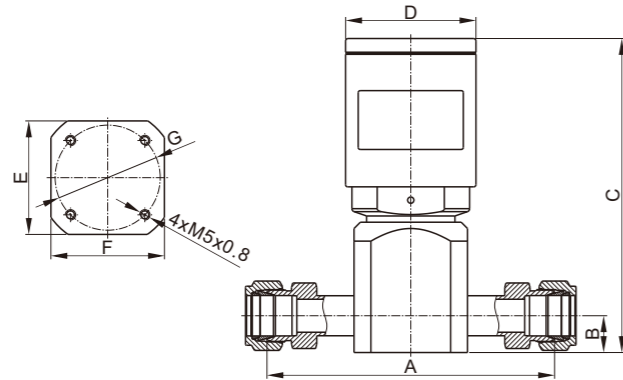
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8CS-VC	1/2"VCR male thread	119.6	17.5	146.7	62	54	54	50
HLD8OS-VC		119.6	17.5	146.7	62	54	54	50
HLD12CS-VC	3/4"VCR male thread	157.2	17.5	149.4	62	54	54	50
HLD12OS-VC		157.2	17.5	149.4	62	54	54	50
HLD16CS-VC	1"VCR male thread	171.8	20.5	155.4	62	54	54	50
HLD16OS-VC		171.8	20.5	155.4	62	54	54	50

VCR female thread



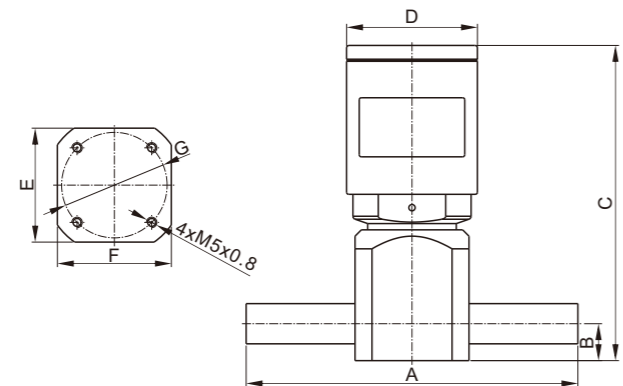
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8CS-VFC	1/2"VCR female thread	119.6	17.5	146.7	62	54	54	50
HLD8OS-VFC		119.6	17.5	146.7	62	54	54	50
HLD12CS-VFC	3/4"VCR female thread	157.2	17.5	149.4	62	54	54	50
HLD12OS-VFC		157.2	17.5	149.4	62	54	54	50
HLD16CS-VFC	1"VCR female thread	171.8	20.5	155.4	62	54	54	50
HLD16OS-VFC		171.8	20.5	155.4	62	54	54	50

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8CS-TC	1/2"card sleeve connector	124.4	17.5	146.7	62	54	54	50
HLD8OS-TC		124.4	17.5	146.7	62	54	54	50
HLD12CS-TC	3/4"card sleeve connector	134.8	17.5	149.4	62	54	54	50
HLD12OS-TC		134.8	17.5	149.4	62	54	54	50
HLD16CS-TC	1"card sleeve connector	141	20.5	155.4	62	54	54	50
HLD16OS-TC		141	20.5	155.4	62	54	54	50

Tube
butt welding



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HLD8CS-BWC	1/2"Tube butt welding	134	17.5	146.7	62	54	54	50
HLD8OS-BWC		134	17.5	146.7	62	54	54	50
HLD12CS-BWC	3/4"Tube butt welding	134	17.5	149.4	62	54	54	50
HLD12OS-BWC		134	17.5	149.4	62	54	54	50
HLD16CS-BWC	1"Tube butt welding	134	20.5	155.4	62	54	54	50
HLD16OS-BWC		134	20.5	155.4	62	54	54	50

Ordering Information

Example

HLD	12	C	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series

HLD

2 End Connection Size

8	12	16
1/2"	3/4"	1"

3 Operation Method

C	O
Pneumatic normally closed	Pneumatic normally open

4 Valve Shape

S	A	L
straight through	right angle	L-type

5 End Connection Specs

V	VF	T	BW
VCR male thread	VCR female thread	GBO-LOK card sleeve connector	Tube butt welding

6 Valve Seat Material

C	A	VS
PCTFE	PFA	Vespe [®]

7 Surface Smoothness Options

BA	EP
Ra 0.25µm(10µin.)	Ra 0.13µm(5µin.)

8 valve body/diaphragm Material

6L	SH	SVH	SVE
SS316L / SS316L	SS316L / Hastelloy [®] C-22	SS316L VAR / Hastelloy [®] C-22	SS316L VAR / cobalt based superalloys

HD series

high-pressure manual high-purity diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. Small internal volume, capable of completely cleaning the flow channel;
3. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
4. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
5. The inner surface roughness can reach Ra 0.13 μm (5 μin.);
6. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
7. Every product undergoes helium testing before leaving the factory.



Return

Technical Parameter

Main Specifications		
End Connection Specs	1/4", 3/8", 1/2"	
Flow coefficient (Cv)	0.27	
Max Working Pressure	3000psig (207bar)	
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	

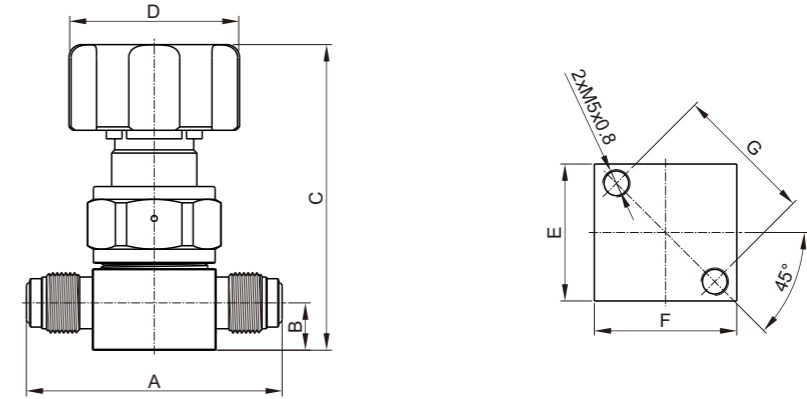
Body Material			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

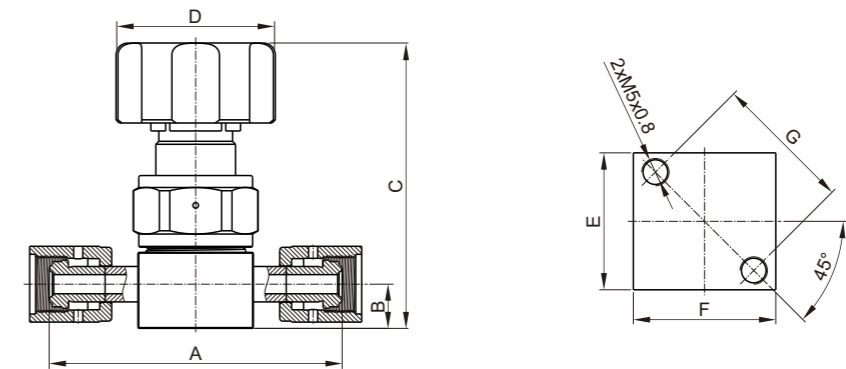
The size is for reference only and may be subject to change.

VCR male thread



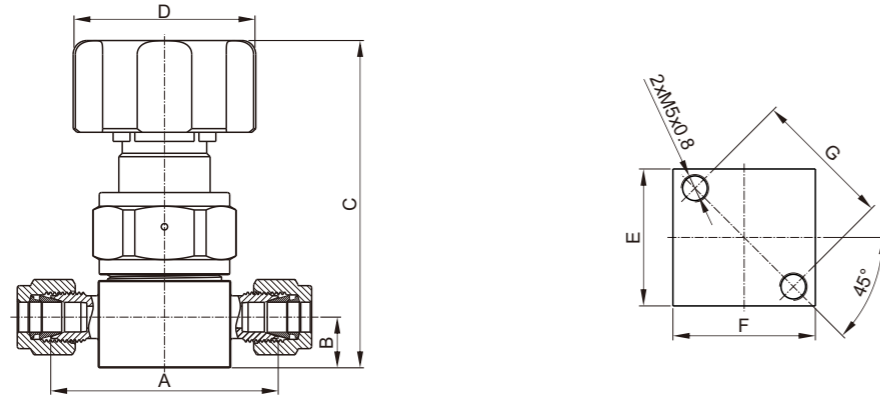
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4MS-VC	1/4"VCR male thread	60	11.1	73.7	48	28.6	29	25.4
HD8MS-VC	1/2"VCR male thread	77	16	76	40	36	36	28

VCR female thread



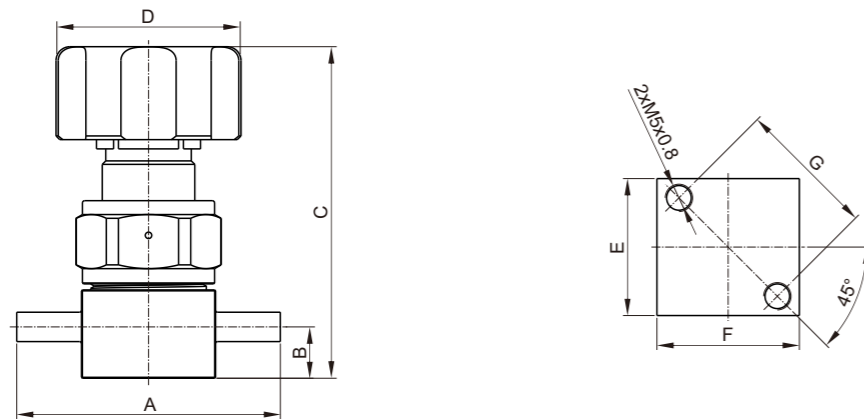
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4MS-VFC	1/4"VCR female thread	76.6	11.1	73.7	48	28.6	29	25.4
HD8MS-VFC	1/2"VCR female thread	83	16	76	40	36	36	28

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4MS-TC	1/4"card sleeve connector	49.7	11.1	73.7	48	28.6	29	25.4
HD6MS-TC	3/8"card sleeve connector	64	16	76	40	36	36	28
HD8MS-TC	1/2"card sleeve connector	64	16	76	40	36	36	28

Tube
butt welding



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4MS-BWC	1/4"Tube butt welding	48.2	11.1	73.7	48	28.6	29	25.4
HD6MS-BWC	3/8"Tube butt welding	69	16	76	40	36	36	28
HD8MS-BWC	1/2"Tube butt welding	69	16	76	40	36	36	28

Ordering Information

Example

HD	4	M	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1	Valve Series	HD								
2	End Connection Size	4 1/4"			6 3/8"			8 1/2"		
3	Operation Method	M 270° hand movement								
4	Valve Shape	S straight through			A right angle			L L-type		
5	End Connection Specs	V VCR male thread		VF VCR female thread		T GBO-LOK card sleeve connector		BW Tube butt welding		
6	Valve Seat Material	C PCTFE			A PFA			VS VespeI [®]		
7	Surface Smoothness Options	BA Ra 0.25µm(10µin.)						EP Ra 0.13µm(5µin.)		
8	valve body/diaphragm Material	6L SS316L / SS316L		SH SS316L / Hastelloy [®] C-22		SVH SS316L VAR / Hastelloy [®] C-22		SVE SS316L VAR / cobalt based superalloys		

HHD series

High flow high-pressure manual ultra-high purity diaphragm valve

Feature

1. There is no spring inside, and the valve seat and diaphragm are welded together;
2. Small internal volume, capable of completely cleaning the flow channel;
3. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
4. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
5. The inner surface roughness can reach Ra 0.13 μm (5 μin.);
6. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
7. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications		
End Connection Specs	1/2" 3/4" 1"	
Max Working Pressure	1300psig (90bar)	3000psig (207bar)
Flow coefficient (Cv)	1.3	0.7
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	

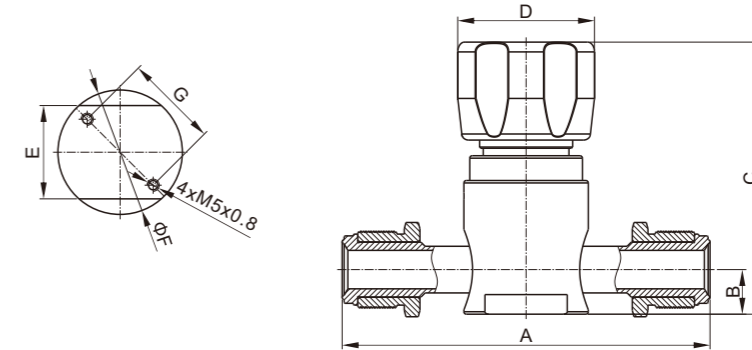
Body Material			
Grade	BA	EP	SEP
Body Material	SS 316L		SS 316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer		double-layer

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

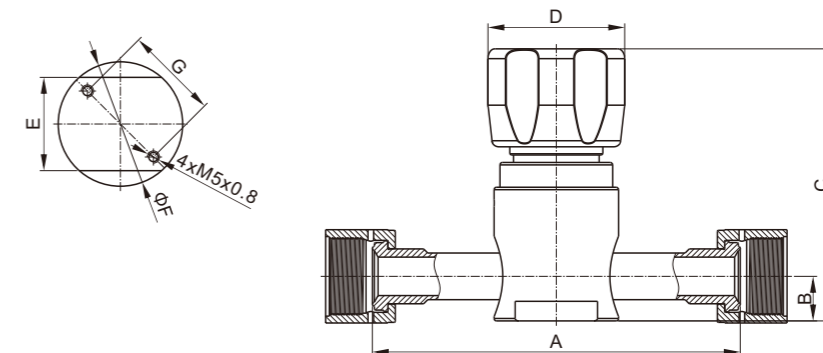
The size is for reference only and may be subject to change.

VCR male thread



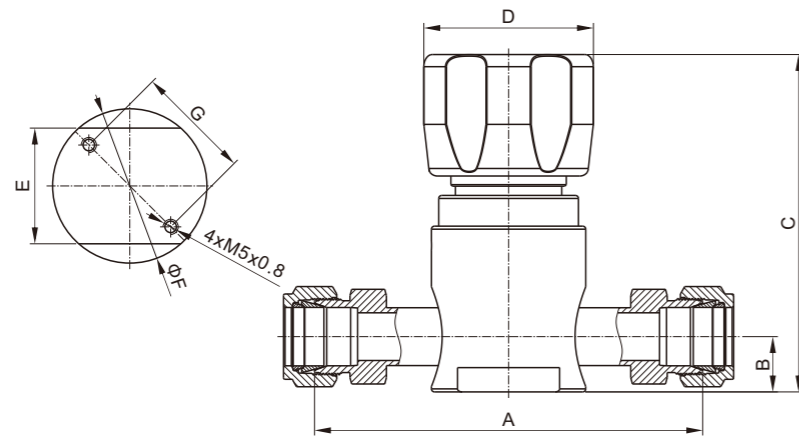
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8MS-VC	1/2"VCR male thread	120	18.2	108.4	58	38.1	50.8	38.1
HHD12MS-VC	3/4"VCR male thread	150.2	18.2	111.1	58	38.1	50.8	38.1
HHD16MS-VC	1"VCR male thread	161.6	21.2	117.1	58	38.1	50.8	38.1

VCR female thread



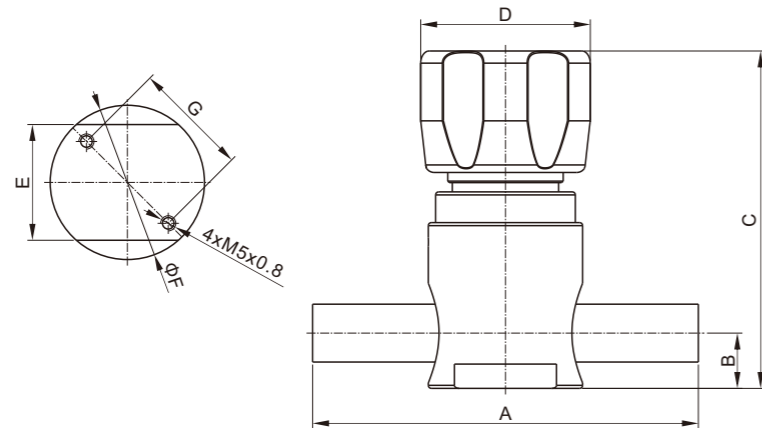
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8MS-VFC	1/2"VCR female thread	120	18.2	108.4	58	38.1	50.8	38.1
HHD12MS-VFC	3/4"VCR female thread	150.2	18.2	111.1	58	38.1	50.8	38.1
HHD16MS-VFC	1"VCR female thread	161.6	21.2	117.1	58	38.1	50.8	38.1

GBO-LOK
card sleeve connector



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8MS-TC	1/2"card sleeve connector	118.6	18.2	108.4	58	38.1	50.8	38.1
HHD12MS-TC	3/4"card sleeve connector	127.8	18.2	111.1	58	38.1	50.8	38.1
HHD16MS-TC	1"card sleeve connector	130.8	21.2	117.1	58	38.1	50.8	38.1

Tube
butt welding



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8MS-BWC	1/2"Tube butt welding	91	18.2	108.4	58	38.1	50.8	38.1
HHD12MS-BWC	3/4"Tube butt welding	127	18.2	111.1	58	38.1	50.8	38.1
HHD16MS-BWC	1"Tube butt welding	127	21.2	117.1	58	38.1	50.8	38.1

Ordering Information

Example

HHD	12	M	S	-	V	C	-	EP	-	SH
1	2	3	4	-	5	6	-	7	-	8

1	Valve Series	HHD								
2	End Connection Size	8 1/2"			12 3/4"			16 1"		
3	Operation Method	M 270° hand movement								
4	Valve Shape	S straight through			A right angle			L L-type		
5	End Connection Specs	V VCR male thread		VF VCR female thread		T GBO-LOK card sleeve connector		BW Tube butt welding		
6	Valve Seat Material	C PCTFE			A PFA			VS Vespel®		
7	Surface Smoothness Options	BA Ra 0.25µm(10µin.)						EP Ra 0.13µm(5µin.)		
8	valve body/diaphragm Material	6L SS316L / SS316L		SH SS316L / Hastelloy® C-22		SVH SS316L VAR / Hastelloy® C-22		SVE SS316L VAR / cobalt based superalloys		

HD series

high-pressure pneumatic high-purity diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. Small internal volume, capable of completely cleaning the flow channel;
3. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
4. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
5. The inner surface roughness can reach Ra 0.13 μm (5 μin.);
6. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
7. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications		
End Connection Specs	1/4", 3/8", 1/2"	
Flow coefficient (Cv)	0.27	
Max Working Pressure	3000psig (207bar)	
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	

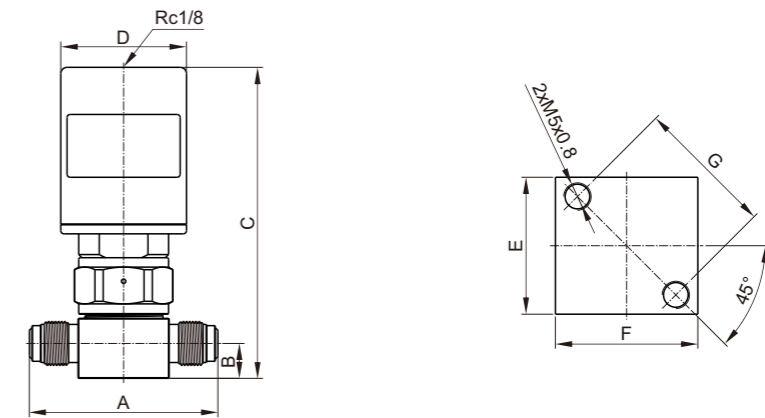
Body Material			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

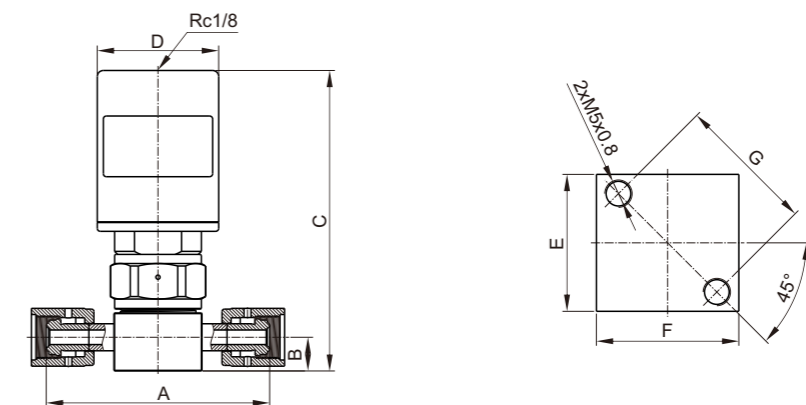
The size is for reference only and may be subject to change.

VCR male thread



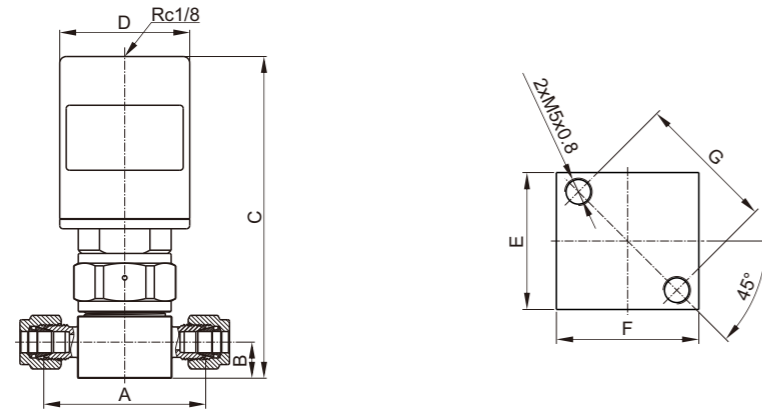
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4CS-VC	1/4"VCR male thread	57	11	67	40	25	26	25.4
HD4OS-VC		57	11	67	40	25	26	25.4
HD8CS-VC	1/2"VCR male thread	77	16	84	55	36	36	28
HD8OS-VC		77	16	77.5	55	36	36	28

VCR female thread



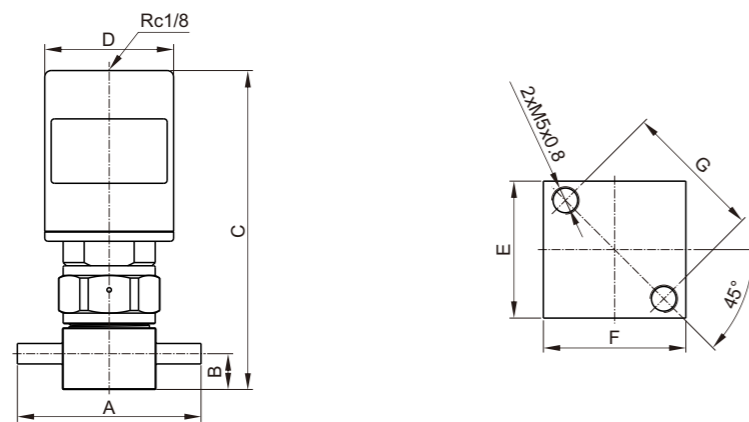
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4CS-VFC	1/4"VCR female thread	70.6	11	67	40	25	26	25.4
HD4OS-VFC		70.6	11	67	40	25	26	25.4
HD8CS-VFC	1/2"VCR female thread	83	16	84	55	36	36	28
HD8OS-VFC		83	16	77.5	55	36	36	28

**GBO-LOK
card sleeve connector**



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4CS-TC	1/4"card sleeve connector	48	11	67	40	25	26	25.4
HD4OS-TC		48	11	67	40	25	26	25.4
HD6CS-TC	3/8"card sleeve connector	64	16	84	55	36	36	28
HD6OS-TC		64	16	77.5	55	36	36	28
HD8CS-TC	1/2"card sleeve connector	64	16	84	55	36	36	28
HD8OS-TC		64	16	77.5	55	36	36	28

**Tube
butt welding**



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HD4CS-BWC	1/4"Tube butt welding	54	11	67	40	25	26	25.4
HD4OS-BWC		54	11	67	40	25	26	25.4
HD6CS-BWC	3/8"Tube butt welding	69	16	84	55	36	36	28
HD6OS-BWC		69	16	77.5	55	36	36	28
HD8CS-BWC	1/2"Tube butt welding	69	16	84	55	36	36	28
HD8OS-BWC		69	16	77.5	55	36	36	28

Ordering Information

Example

HD	4	C	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series

HD

2 End Connection Size

4	6	8
1/4"	3/8"	1/2"

3 Operation Method

C	O
normally closed	normally open

4 Valve Shape

S	A	L
straight through	right angle	L-type

5 End Connection Specs

V	VF	T	BW
VCR male thread	VCR female thread	GBO-LOK card sleeve connector	Tube butt welding

6 Valve Seat Material

C	A	VS
PCTFE	PFA	VespeI®

7 Surface Smoothness Options

BA	EP
Ra 0.25µm(10µin.)	Ra 0.13µm(5µin.)

8 valve body/diaphragm Material

6L	SH	SVH	SVE
SS316L / SS316L	SS316L / Hastelloy® C-22	SS316L VAR / Hastelloy® C-22	SS316L VAR / cobalt based superalloys

HHD series

high flow high-pressure ultra-high purity diaphragm valve

Feature

1. There is no spring inside, and the valve seat and diaphragm are welded together;
2. Small internal volume, capable of completely cleaning the flow channel;
3. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
4. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
5. The inner surface roughness can reach Ra 0.13 μm (5 μin.);
6. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
7. Every product undergoes helium testing before leaving the factory.



Technical Parameter

Main Specifications			
End Connection Specs	1/2"	3/4"	1"
Max Working Pressure	1300psig (90bar)		3000psig (207bar)
Flow coefficient (Cv)	1.3		0.7
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)	
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)	
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)		

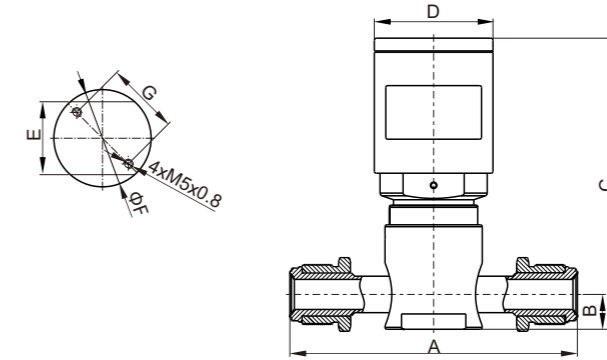
Body Material			
Grade	BA	EP	SEP
Body Material	SS 316L		SS 316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

Size table

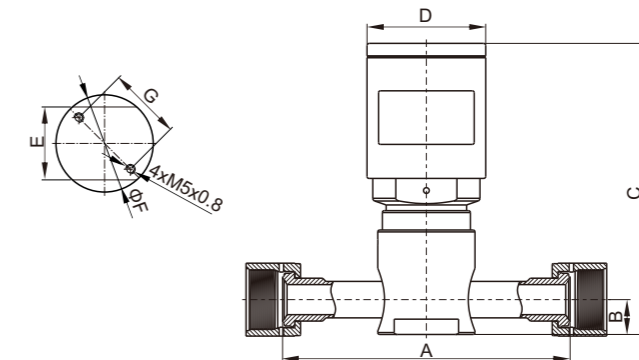
The size is for reference only and may be subject to change.

VCR male thread



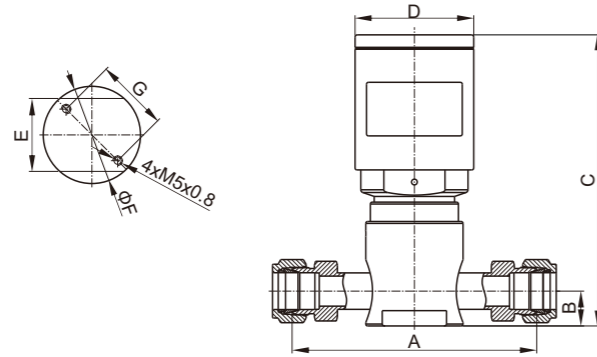
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8CS-VC	1/2"VCR male thread	120	18.2	146	58	38.1	50.8	38.1
HHD8OS-VC		120	18.2	146	58	38.1	50.8	38.1
HHD12CS-VC	3/4"VCR male thread	150.2	18.2	148.7	58	38.1	50.8	38.1
HHD12OS-VC		150.2	18.2	148.7	58	38.1	50.8	38.1
HHD16CS-VC	1"VCR male thread	161.6	21.2	154.7	58	38.1	50.8	38.1
HHD16OS-VC		161.6	21.2	154.7	58	38.1	50.8	38.1

VCR female thread



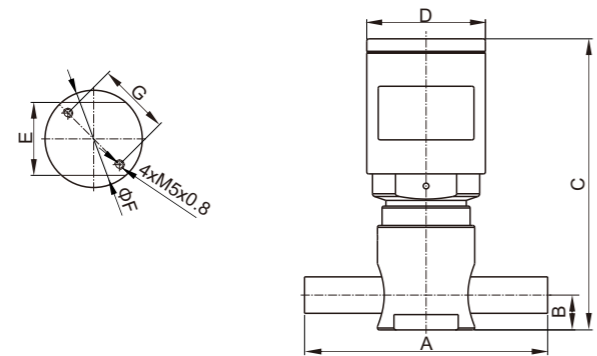
Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8CS-VFC	1/2"VCR female thread	120	18.2	146	58	38.1	50.8	38.1
HHD8OS-VFC		120	18.2	146	58	38.1	50.8	38.1
HHD12CS-VFC	3/4"VCR female thread	150.2	18.2	148.7	58	38.1	50.8	38.1
HHD12OS-VFC		150.2	18.2	148.7	58	38.1	50.8	38.1
HHD16CS-VFC	1"VCR female thread	161.6	21.2	154.7	58	38.1	50.8	38.1
HHD16OS-VFC		161.6	21.2	154.7	58	38.1	50.8	38.1

**GBO-LOK
card sleeve connector**



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8CS-VFC	1/2" card sleeve connector	118.6	18.2	146	58	38.1	50.8	38.1
HHD8OS-VFC		118.6	18.2	146	58	38.1	50.8	38.1
HHD12CS-VFC	3/4" card sleeve connector	127.8	18.2	148.7	58	38.1	50.8	38.1
HHD12OS-VFC		127.8	18.2	148.7	58	38.1	50.8	38.1
HHD16CS-VFC	1" card sleeve connector	130.8	21.2	154.7	58	38.1	50.8	38.1
HHD16OS-VFC		130.8	21.2	154.7	58	38.1	50.8	38.1

**Tube
butt welding**



Model	End Connection Specs	size(mm)						
		A	B	C	D	E	F	G
HHD8CS-BWC	1/2" Tube butt welding	91	18.2	146	58	38.1	50.8	38.1
HHD8OS-BWC		91	18.2	146	58	38.1	50.8	38.1
HHD12CS-BWC	3/4" Tube butt welding	127	18.2	148.7	58	38.1	50.8	38.1
HHD12OS-BWC		127	18.2	148.7	58	38.1	50.8	38.1
HHD16CS-BWC	1" Tube butt welding	127	21.2	154.7	58	38.1	50.8	38.1
HHD16OS-BWC		127	21.2	154.7	58	38.1	50.8	38.1

Ordering Information

Example

HHD	12	C	S	-	V	C	-	EP	-	6L
1	2	3	4	-	5	6	-	7	-	8

1 Valve Series

HHD

2 End Connection Size

8	12	16
1/2"	3/4"	1"

3 Operation Method

C	O
normally closed	normally open

4 Valve Shape

S	A	L
straight through	right angle	L-type

5 End Connection Specs

V	VF	T	BW
VCR male thread	VCR female thread	GBO-LOK card sleeve connector	Tube butt welding

6 Valve Seat Material

C	A	VS
PCTFE	PFA	VespeI®

7 Surface Smoothness Options

BA	EP
Ra 0.25µm(10µin.)	Ra 0.13µm(5µin.)

8 valve body/diaphragm Material

6L	SH	SVH	SVE
SS316L / SS316L	SS316L / Hastelloy® C-22	SS316L VAR / Hastelloy® C-22	SS316L VAR / cobalt based superalloys

B23 series

two-way three-way manual high-purity diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel;
3. By combining two LD or HD series diaphragm valves into one, the dead zone is reduced through a common flow path limit, and the degassing performance is superior;
4. While maintaining the basic performance of the original valve, a compact piping system can be designed through similar or dissimilar combinations;
5. Suitable flow path systems, piping configurations, and types of joints can be selected based on the piping layout;
6. We can design and manufacture multi diaphragm valves with special specifications of triple or more;
7. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
8. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
9. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
10. Every product undergoes helium testing before leaving the factory.



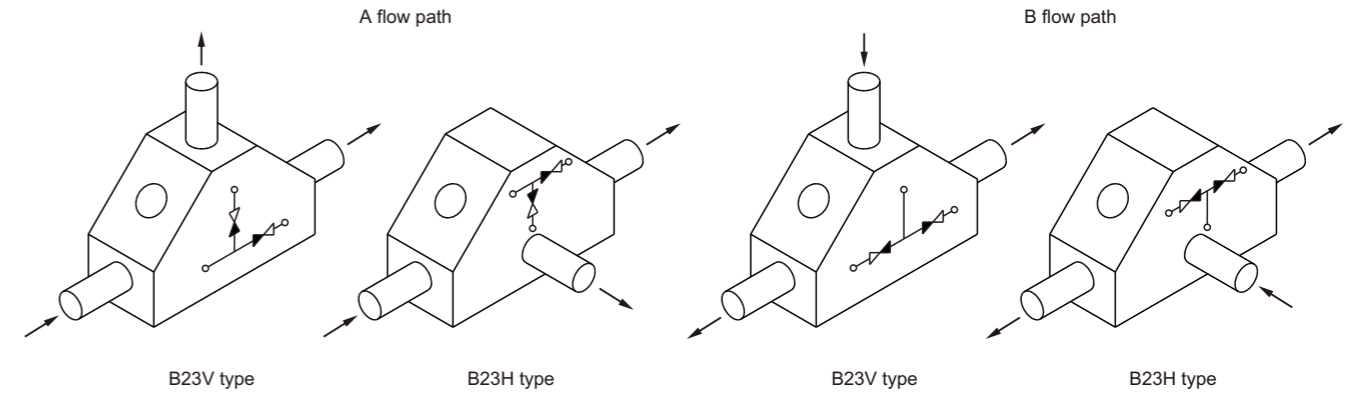
Technical Parameter

Main Specifications		
End Connection Specs	1/4"	3/8", 1/2"
Flow coefficient (Cv)	0.22	0.7
Max Working Pressure	low pressure: 250psig (17.2bar); High pressure: 3000psig (207bar)	
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	

Body Material			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer	double-layer	

Product Material	
valve body	SS316L / A479 or SS316L VAR / SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

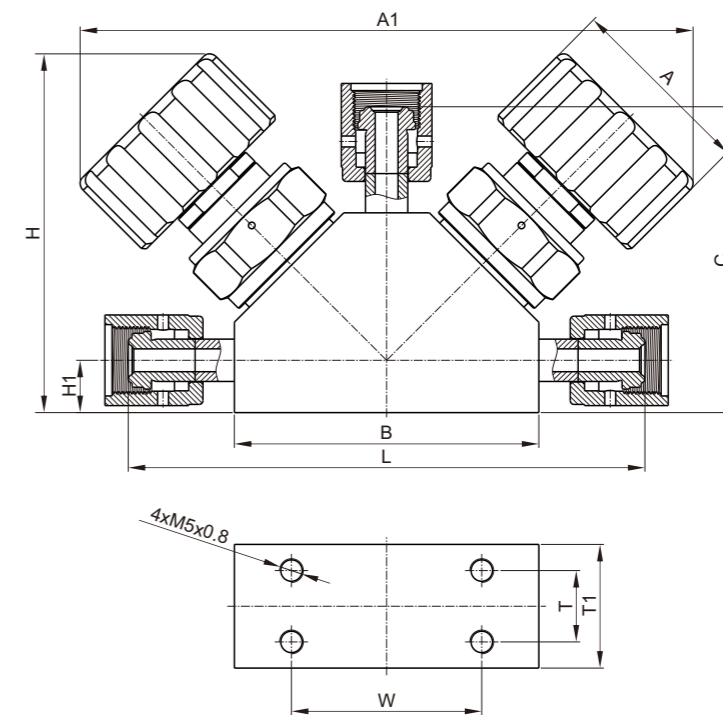
Internal flow path



Size table

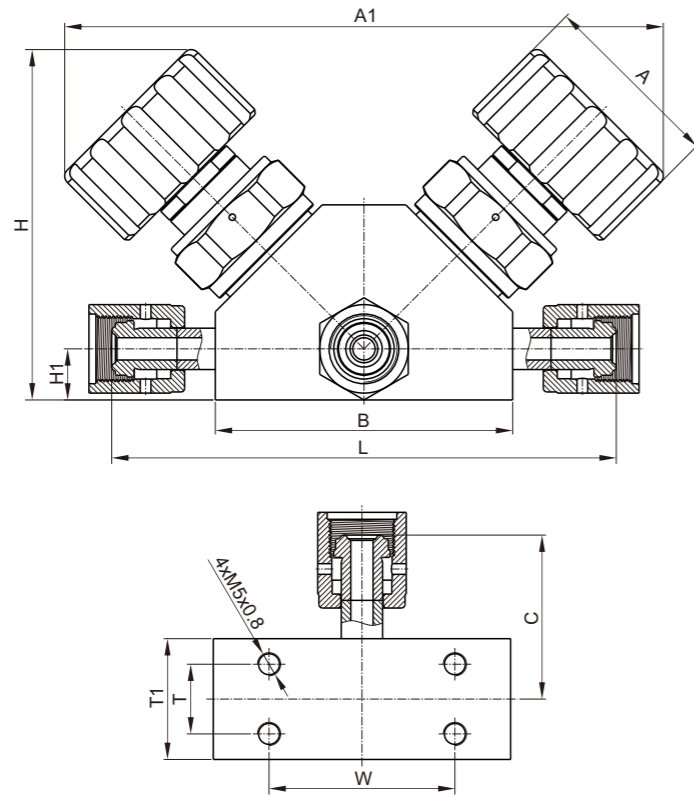
The size is for reference only and may be subject to change.

B23V type



Model	End Connection Specs	size(mm)									
		L	A	A1	B	C	H	H1	W	T	T1
B23V	1/4"VCR female thread	107.6	41	122	64	53.8	72	11	40	15	26
B23V	1/2"VCR female thread	143	41	142	97	71.5	87	16	70	20	36

B23H type



Model	End Connection Specs	size(mm)									
		L	A	A1	B	C	H	H1	W	T	T1
B23H	1/4"VCR female thread	107.6	41	122	64	34.8	72	11	40	15	26
B23H	1/2"VCR female thread	143	41	142	97	41	87	16	70	20	36

Ordering Information

Example

B23	V	LD	4	M	VF	C	A	EP	6L
1	2	3	4	5	6	7	8	9	10

1	Valve Series	B23		
2	Connection direction	V vertical	H level	
3	Diaphragm valve model series	LD LD series low-pressure manual diaphragm valve	HD HD series high-pressure manual diaphragm valve	
4	End Connection Size	4 1/4"	6 3/8"	8 1/2"
5	Operation Method	M 270° hand movement		
6	End Connection Specs	V VCR male thread	VF VCR female thread	BW Tube butt welding
7	Valve Seat Material	C PCTFE	A PFA	VS Vespe [®]
8	Flow path	A A flow path		B B flow path
9	Surface Smoothness Options	BA Ra 0.25µm(10µin.)		EP Ra 0.13µm(5µin.)
10	valve body/diaphragm Material	6L SS316L / SS316L	SH SS316L / Hastelloy [®] C-22	SVH SS316L VAR / Hastelloy [®] C-22
				SVE SS316L VAR / cobalt based superalloys

B23 series

two-way three-way pneumatic high-purity diaphragm valve

Feature

1. SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
2. The inner surface roughness can reach Ra 0.13 μm (5 μin.), which can completely clean the flow channel;
3. By combining two LD or HD series diaphragm valves into one, the dead zone is reduced through a common flow path limit, and the degassing performance is superior;
4. While maintaining the basic performance of the original valve, a compact piping system can be designed through similar or dissimilar combinations;
5. Suitable flow path systems, piping configurations, and types of joints can be selected based on the piping layout;
6. We can design and manufacture multi diaphragm valves with special specifications of triple or more;
7. Cobalt based superalloys have high strength, corrosion resistance, and long service life;
8. Fully enclosed valve seat design enhances anti expansion and anti pollution capabilities, and improves helium leak testing performance. At the same time, it produces very few particles and has a long service life;
9. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
10. Every product undergoes helium testing before leaving the factory.



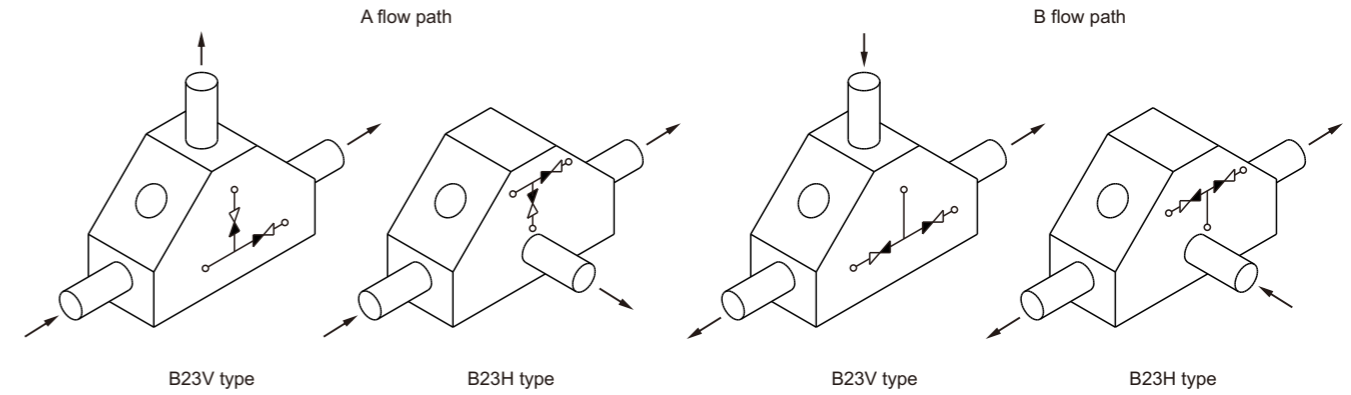
Technical Parameter

Main Specifications		
End Connection Specs	1/4"	3/8", 1/2"
Flow coefficient (Cv)	0.22	0.7
Max Working Pressure	low pressure: 250psig (17.2bar); High pressure: 3000psig (207bar)	
Working Temperature	PCTFE	-40°C-80°C (-40°F-176°F)
	PFA, Vespel®	-26°C-177°C (-15°F-350°F)
inside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	
outside valve body leakage rate	≤1x10 ⁻⁹ std cm ³ /s(Helium)	

Body Material			
Grade	BA	EP	SEP
Body Material	SS316L		SS316L VAR
Internal surface roughness	Ra 0.25μm(10μin.)		Ra 0.13μm(5μin.)
Grind	Mechanical Grinding Processing		Electrolytic grinding processing
Clean	degreasing cleaning + precision cleaning		
Package	single layer		double-layer

Product Material	
valve body	SS316L/A479 or SS316L VAR/SEMI F20-0305
diaphragm	SS316L or Hastelloy® C-22 or cobalt based superalloys
valve seat	PCTFE or PFA or Vespel®

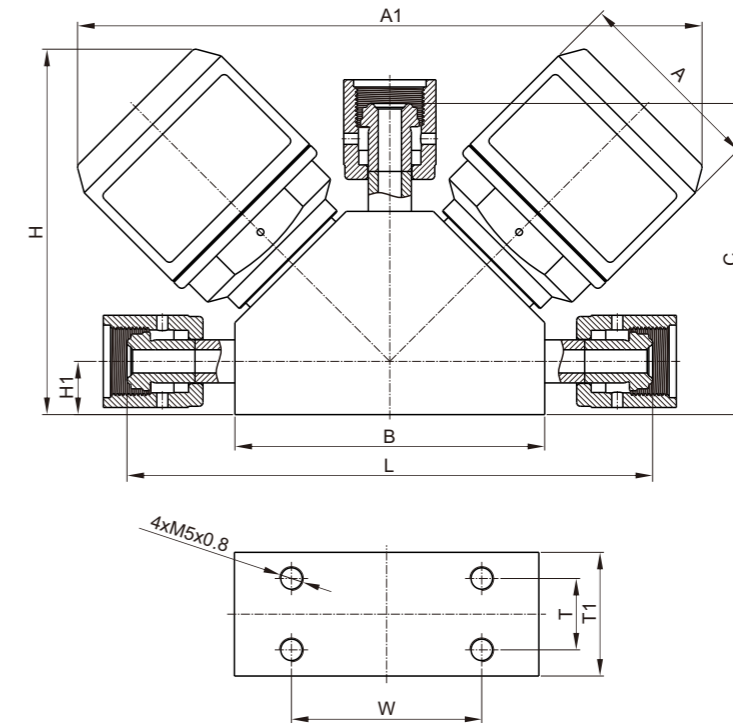
Internal flow path



Size table

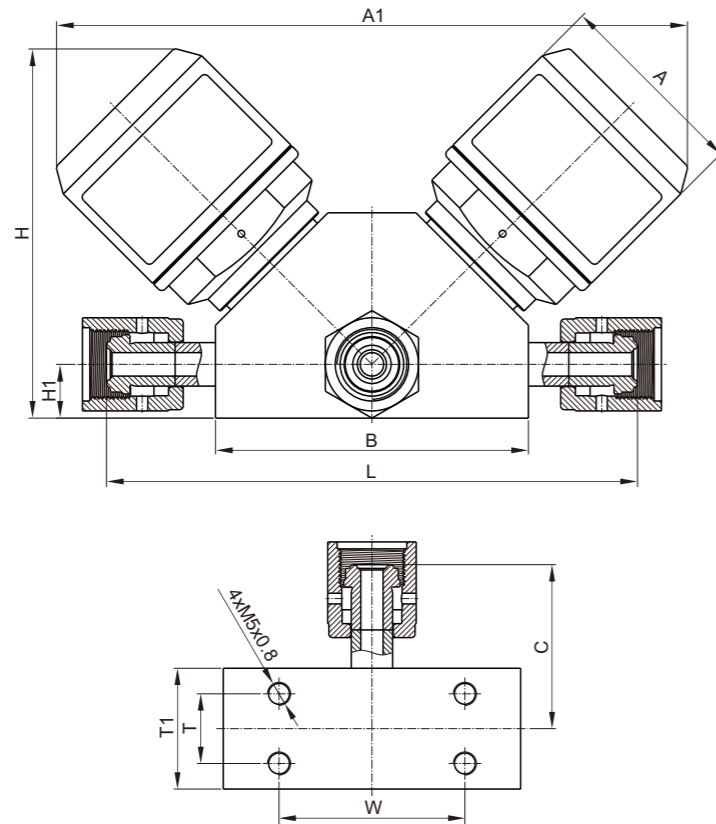
The size is for reference only and may be subject to change.

B23V type



Model	End Connection Specs	size(mm)									
		L	A	A1	B	C	H	H1	W	T	T1
B23V	1/4"VCR female thread	107.6	41	122	64	53.8	72	11	40	15	26
B23V	1/2"VCR female thread	143	41	142	97	71.5	87	16	70	20	36

B23H type



Model	End Connection Specs	size(mm)									
		L	A	A1	B	C	H	H1	W	T	T1
B23H	1/4"VCR female thread	107.6	41	122	64	34.8	72	11	40	15	26
B23H	1/2"VCR female thread	143	41	142	97	41	87	16	70	20	36

Ordering Information

Example

B23	V	LD	4	C	VF	C	A	EP	6L
1	2	3	4	5	6	7	8	9	10

1	Valve Series	B23		
2	Connection direction	V vertical	H level	
3	Diaphragm valve model series	LD LD series low-pressure pneumatic diaphragm valve	HD HD series high-pressure pneumatic diaphragm valve	
4	End Connection Size	4 1/4"	6 3/8"	8 1/2"
5	Operation Method	C normally closed	O normally open	
6	End Connection Specs	V VCR male thread	VF VCR female thread	BW Tube butt welding
7	Valve Seat Material	C PCTFE	A PFA	VS Vespe [®]
8	Flow path	A A flow path		B B flow path
9	Surface Smoothness Options	BA Ra 0.25µm(10µin.)	EP Ra 0.13µm(5µin.)	
10	valve body/diaphragm Material	6L SS316L / SS316L	SH SS316L / Hastelloy [®] C-22	SVH SS316L VAR / Hastelloy [®] C-22
				SVE SS316L VAR / cobalt based superalloys