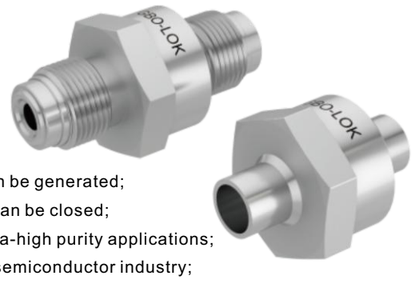
High purity one-way valve

GBO.LOK®

CW series

Fully welded one-way valve



Feature

1. Full welding design can provide reliable system fluid control;
2.When the pressure difference is less than 2psig (0.14bar), positive flow can be generated;
3.When the back pressure difference is less than 2psig (0.14bar), the valve can be closed;
4. SS316L, SS316L VAR stainless steel valve body material, suitable for ultra-high purity applications;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Each product undergoes helium testing before leaving the factory.

Technical Parameter

Opening Pressure psi(bar)	Max back pressure psi(bar)	Max pressure drop psi(bar)	The min burst pressure at 20 ° C (70 ° F), psi(bar)	Discharge Coefficient (Cv)
< 2 (0.14)	Full pressure rating	145(10.0)	12000 (826)	0.55: 1/4" 6mm card sleeve connector 1/4" 6mm Tube butt welding 0.70: 1/4" 1/2"VCR joint 3/8" 1/2" Tube butt welding

Pressure Temperature Rating

Material	316L stainless steel
Temperature °C (°F)	working pressure,psig (bar)
-23 (-10) to 37 (100)	3000 (206)
93 (200)	2530 (174)
148 (300)	2270 (154)
204 (400)	2065 (142)

Flow data at 20 ° C (70 ° F)

pressure drop psi (bar)	Air flow rate: standard ft³/min (standard L/min)	
	Cv: 0.55	Cv: 0.7
1 (0.07)	6.2 (170)	7.9 (220)
50 (3.4)	16 (450)	21 (590)
100 (6.8)	29 (820)	37 (1040)

Product Grade

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

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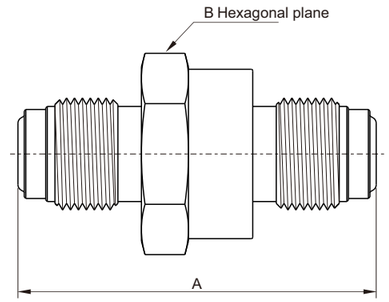
Size table

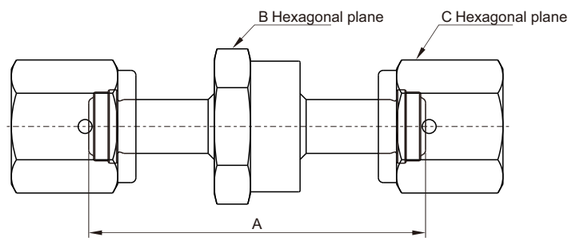
The size is for reference only and may be subject to change.

VCR
Male thread



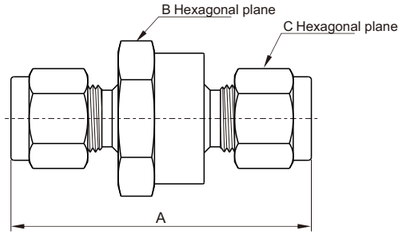
Product Series	End Connection Specs	size(mm)	
		A	B (in.)
CW4	1/4"VCR male thread	45.7	7/8
CW4	1/2"VCR male thread	52.3	1

VCR
female thread



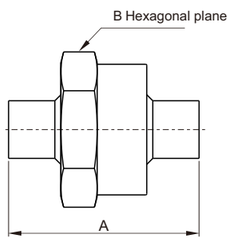
Product Series	End Connection Specs	size(mm)		
		A	B (in.)	C (in.)
CW4	1/4"VCR female thread	61.7	7/8	3/4
CW4	1/2"VCR female thread	61.7	7/8	1-1/16

card sleeve connector



Product Series	End Connection Specs	size(mm)		
		A	B (in.)	C (in.)
CW4	1/4" card sleeve connector	49.8	7/8	9/16
CW4	3/8" card sleeve connector	52.8	7/8	11/16
CW4	1/2" card sleeve connector	52.8	7/8	7/8

Tube
Pipe butt welding



Product Series	End Connection Specs	size(mm)	
		A	B (in.)
CW4	1/4" Pipe butt welding	31.5	7/8
CW4	3/8" Pipe butt welding	31.5	7/8
CW4	1/2" Pipe butt welding	31.5	7/8

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Ordering Information

Example

CW4	–	4	V	–	NBR	–	EP	–	6L
1		2	3		4		5		6

1 Valve Series

CW4

2 End Connection Specs

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

3 End Connection Type

V	VF	T	BW
VCR male thread	VCR female thread	card sleeve connector	Pipe butt welding

4 O-ring material

Blank	NBR	FFPM
FKM fluororubber (standard)	Nitrile rubber	FFKM

5 Surface Smoothness Options

BA	EP
mechanical polishing	electrolytic polishing

6 Body Material

6L	6LV
SS316L	SS316L VAR

CV series

One-way valve

Feature

1. SS316L, SS316L VAR stainless steel valve body material, can be used for ultra-high purity applications;
2. The inner surface roughness can reach Ra 0.13 μ m (5 μ in.)
3. Multiple options for opening pressure;
4. Full welding type one-way valve can be selected;
5. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
6. Each product undergoes helium gas testing upon release.

Technical Parameter

Opening pressure - initially refers to the inlet pressure at the time of stable air bubble flow;
Re sealing pressure - the pressure at no flow point;
Back pressure - the pressure difference between the inlet and outlet;
When the valve is not opened for a period of time, its initial opening pressure may be higher than the set opening pressure.

End Connection Specs	Discharge Coefficient (Cv)	Opening Pressure, psig (bar)	The max back pressure at 20 ° C (70 ° F), psig (bar)	
			1/4"	3/8", 1/2", 3/4",1"
1/4"	0.47	1/3, 1, 10 and 25 (0.03, 0.07, 0.69 and 1.72)	1000(68.9)	200(13.7)
3/8"	1.47			
1/2"	1.68			
3/4" and 1"	4.48			

Pressure Temperature Rating

1/4", 3/8", 1/2"		3/4", 1"	
Temperature °C (°F)	working pressure,psig (bar)	Temperature °C (°F)	working pressure,psig (bar)
-23(-10) to 37(100)	3000 (206)	-23(-10) to 37(100)	2000 (137)
93(200)	2575 (177)	93(200)	1715 (118)
121(250)	2450 (168)	121(250)	1630 (112)
148(300)	2325 (160)	148(300)	1545 (106)
190(375)	2185 (150)	190(375)	1450 (100)

Opening pressure and resealing pressure at 20 ° C (70 ° F)

Opening Pressure,psig(bar)	Opening Pressure Range,psig(bar)	resealing pressure,psig(bar)
1/3 (0.03)	3 (0.21)below	6 (0.42)below back pressure
1 (0.07)	4 (0.28)below	6 (0.42)below back pressure
10 (0.69)	7 to 13 (0.49 to 0.90)	3 (0.21)or above import pressure
25 (1.80)	20 to 30 (1.38 to 2.06)	17 (1.20)or above import pressure

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Product Grade

Grade	Body Material	Internal surface roughness	Grind	clean	Package
AP	SS 316L	Ra 0.65μm(25μin.)	-	degreasing cleaning + precision cleaning	single layer
BA		Ra 0.25μm(10μin.)	mechanical grinding processing		
EP		Ra 0.25μm(10μin.)	electrolytic grinding processing		double-layer
SEP	SS 316L VAR				

Material

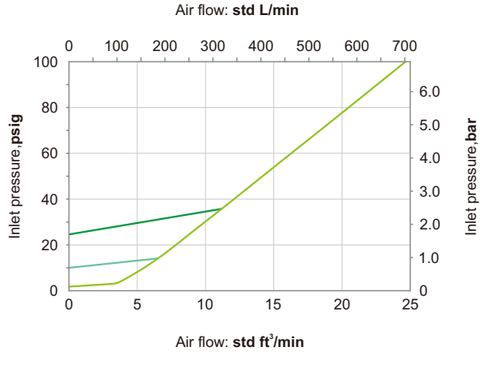
Valve body	Lift the head	O-rings
SS316L or SS316L VAR	SS316L or SS316L VAR	FKM or NBR or FFPM

Flow data at 20 ° C (70 ° F)

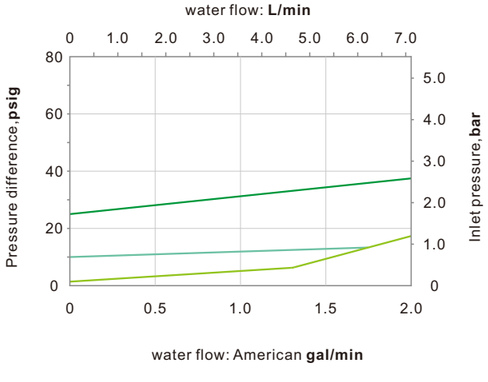
The flow curve shown here was generated under optimal experimental conditions, and the flow results in specific applications may vary due to differences in system application parameters.

Opening Pressure	1psi(0.07bar)	10psi(0.69bar)	25psi(1.72bar)
CV6, CV12, CV16			
CV4, CV8			

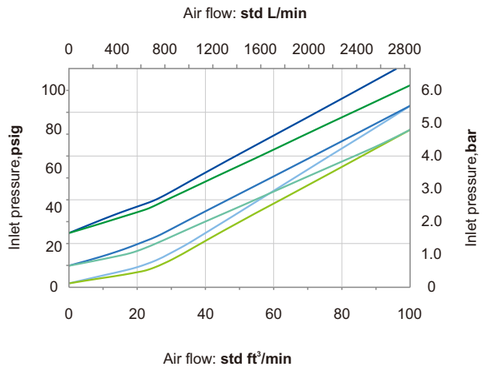
air
CV4 series



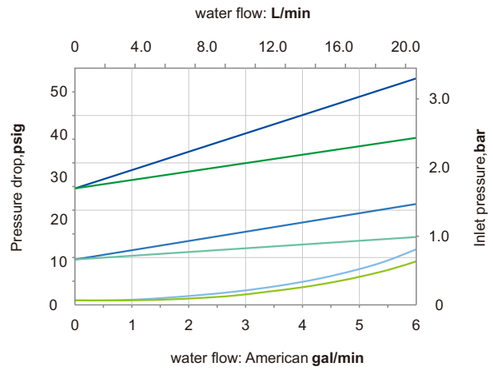
water
CV4 series



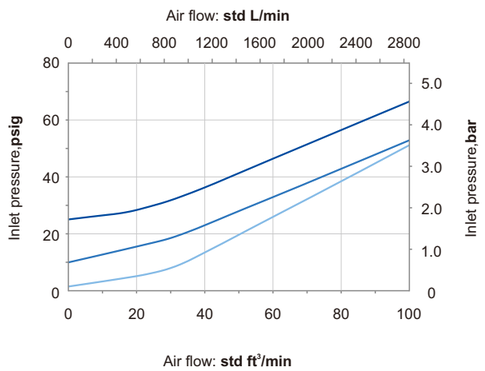
air
CV6, CV8 series



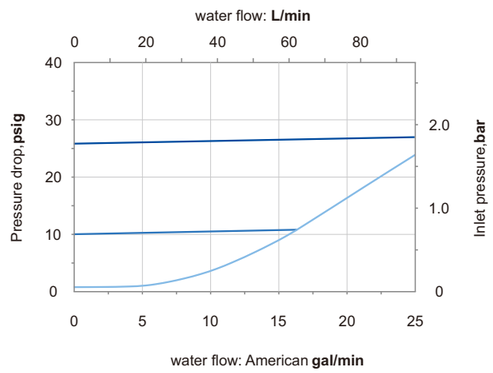
water
CV6, CV8 series



air
CV12, CV16 series



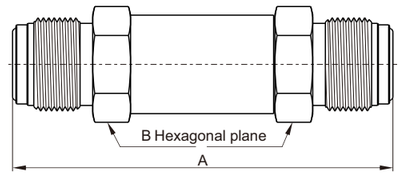
water
CV12, CV16 series



Size table

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

VCR
male thread



Product Series	End Connection Specs	size(mm)	
		A	B (in.)
CV4	1/4"VCR male thread	56.1	5/8
CV8	1/2"VCR male thread	90.4	15/16
CV12	3/4"VCR male thread	118	1-5/8
CV16	1"VCR male thread	121	1-5/8

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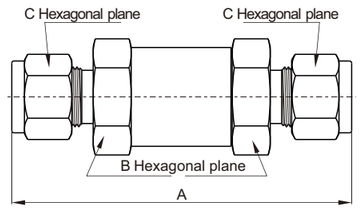
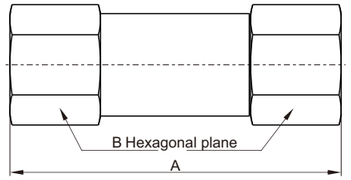
card sleeve connector



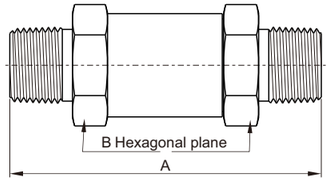
Product Series	End Connection Specs	size(mm)		
		A	B (in.)	C (in.)
CV2	1/8" card sleeve connector	54.3	5/8	7/16
CV4	1/4" card sleeve connector	59.7	5/8	9/16
CV6	3/8" card sleeve connector	80.5	7/8	11/16
CV8	1/2" card sleeve connector	86.9	7/8	7/8
CV12	3/4" card sleeve connector	110.0	1-1/4	1-1/8
CV16	1" card sleeve connector	120.0	1-3/8	1-1/2
CV6M	6mm card sleeve connector	59.7	5/8	14mm
CV10M	10mm card sleeve connector	84.3	7/8	19mm
CV12M	12mm card sleeve connector	86.9	7/8	22mm

NPT
Female thread



Product Series	End Connection Specs	size(mm)	
		A	B (in.)
CV2	1/8"NPT female thread	48.0	5/8
CV4	1/4"NPT female thread	54.6	3/4
CV6	3/8"NPT female thread	75.7	7/8
CV8	1/2"NPT female thread	90.9	1-1/16
CV12	3/4"NPT female thread	104.0	1-1/4
CV16	1"NPT female thread	123.0	1-5/8

NPT
Male thread



Product Series	End Connection Specs	size(mm)	
		A	B (in.)
CV2	1/8"NPT male thread	43.4	5/8
CV4	1/4"NPT male thread	53.1	5/8
CV6	3/8"NPT male thread	70.6	7/8
CV8	1/2"NPT male thread	80.3	7/8
CV12	3/4"NPT male thread	104.0	1-1/4
CV16	1"NPT male thread	115.0	1-5/8

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Ordering Information

Example

CV	4	T	–	1/3	–	NBR	–	AP	–	6L
1	2	3		4		5		6		7

1 Valve Series

CV

2 End Connection Specs

2	4	6	8	12	16
1/8"	1/4"	3/8"	1/2"	3/4"	1"

3 End Connection Type

V	T	FN	N
VCR male thread	card sleeve connector	NPT female thread	NPTmale thread

4 Opening Pressure

1/3	1	10	25
1/3psig	1psig	10psig	25psig

5 O-ring Material

Blank	NBR	FFPM
FKM fluororubber (standard)	Nitrile rubber	FFKM

6 Surface Smoothness Options

AP	BA	EP
No grinding	mechanical polishing	electrolytic polishing

7 Body Material

6L	6LV
SS316L	SS316L VAR