

High purity pressure reducing valve

GBO.LOK®



GR 1000 series

low and medium flow single-stage pressure reducing valve

Feature

1. Valve body material: SS316L, SS316L VAR;
2. Metal to metal diaphragm sealing;
3. Internal electrolytic polishing, with a smoothness of up to Ra 0.13 μm (5 μin.);
4. Small internal volume;
5. The import pressure can reach 3500pg;
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

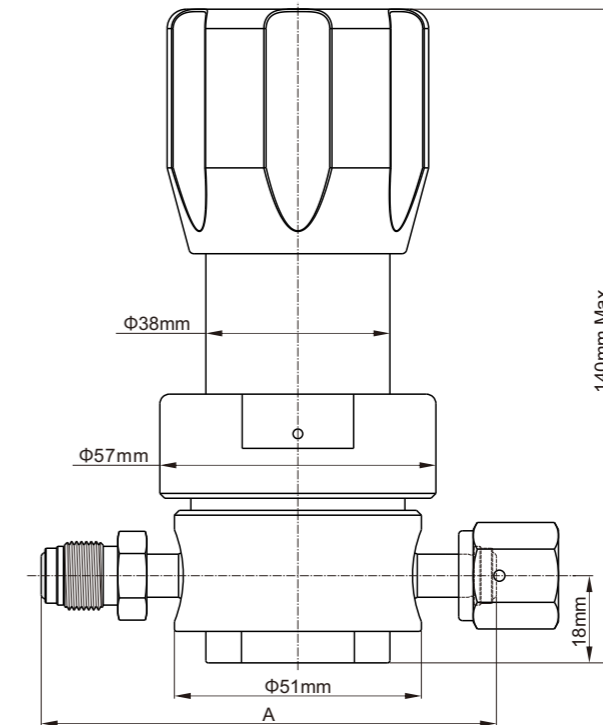
Working Pressure							
Input Pressure	Output Pressure					Verify Pressure	Blasting Pressure
	GR 1001	GR 1002	GR 1006	GR 1010	GR 1015		
Vacuum-300psig (21bar)	1-10psig (0.07-0.7bar)	1-30psig (0.07-2.0bar)	2-60psig (0.14-4.0bar)	2-100psig (0.14-7.0bar)	5-150psig (0.34-10.0bar)	150% of max work pressure	300% of max work pressure
Vacuum-3500psig (241bar)							

Functional Characteristics										
End Connection Specs	Flow Coefficient (Cv)	Internal Volume	Working Temperature		Smoothness of the flow channel	inside valve body leakage rate	outside valve body leakage rate	Valve seat leakage rate	Installation method	Supply pressure efficiency
			PCTFE	Vesol®						
1/4" VCR 1/4"Tube 3/8"Tube	Standard: 0.09 High Flow: 0.15	0.49 in ³ (8cm ³)	-40°C-80°C (-40°F-176°F)	-26°C-177°C (-15°F-350°F)	BA:Ra 0.25μm(10μin.) EP:Ra 0.13μm(5μin.)	≤2x10 ⁻¹⁰ std cm ³ /s	≤2x10 ⁻⁹ std cm ³ /s (Helium)	≤4x10 ⁻⁸ std cm ³ /s (Helium)	Rear seat installation or Panel installation	Standard: 0.25% High Flow: 0.75%

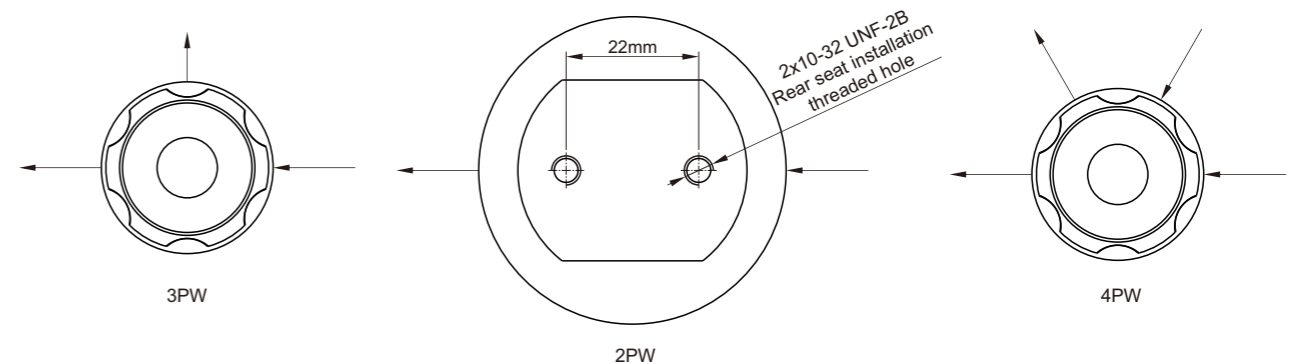
Structural Materials			
Valve Body	Diaphragm Lifting Valve Core	Surface Treatment Inside The Valve Body	Valve Seat Sealing Material
SS 316L or SS 316L VAR or Hastelloy® C-22	SS 316L or Hastelloy® C-22	Electropolishing and passivation	PCTFE or Vespel®

Size table

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



End connection specs	A size (mm)
1/4"VCR joint	94.0
1/4"Tube welding joint	75.0
3/8"Tube welding joint	75.0



Flow curve

GR 1000 series

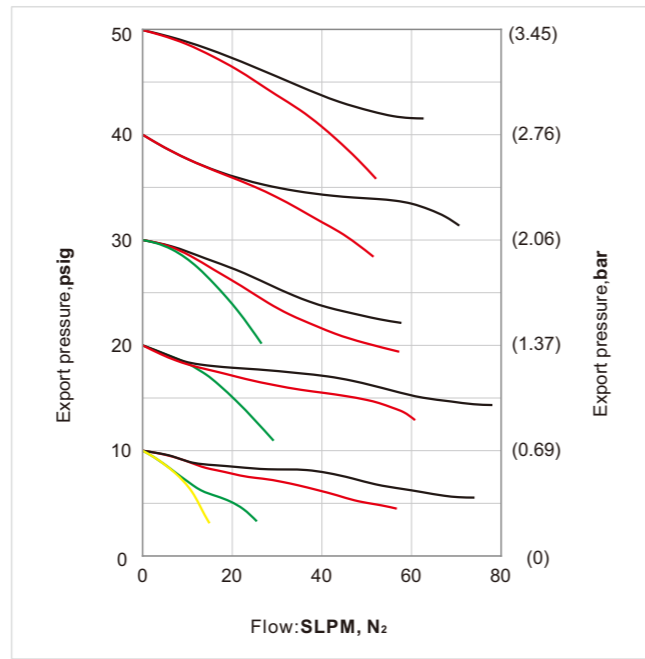
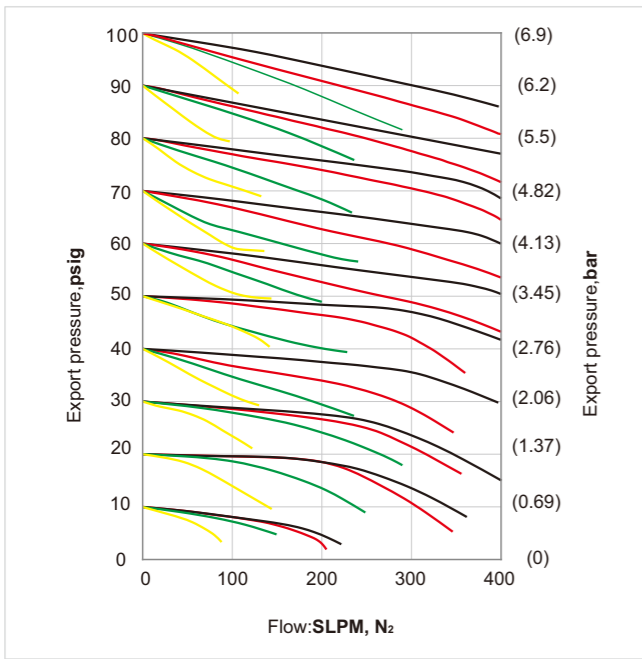
Inlet pressure:

- 3000-2000psi (207-138bar)
- 1000psi (69bar)
- 500psi (3.4bar)
- 200psi (13.7bar)

GR 1000 series

Inlet pressure:

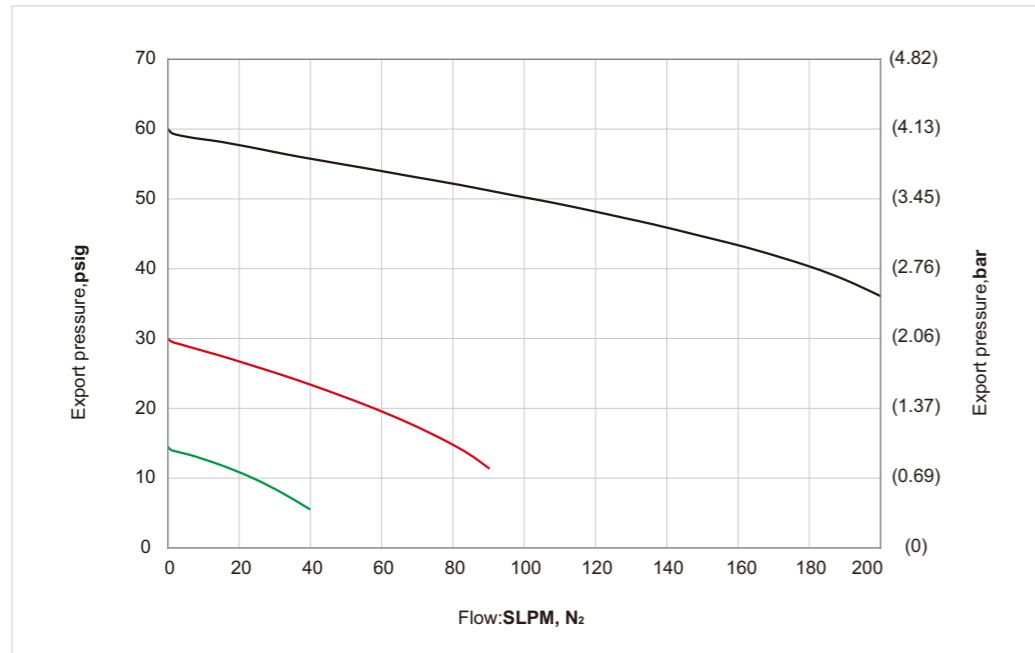
- 100psi (6.9bar)
- 80psi (5.5bar)
- 40psi (2.76bar)
- 20psi (1.38bar)



GR 1000 HF series

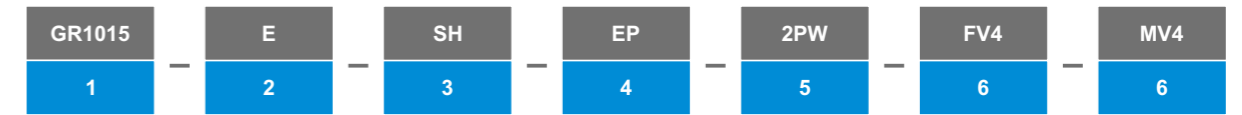
Inlet pressure:

- 100psi (6.9bar)
- 50psi (3.4bar)
- 30psi (2.0bar)



Ordering Information

Example



1 Pressure control range

GR 1001	GR 1002	GR 1006	GR 1010	GR 1015
1-10psig(0.07-0.7bar)	1-30psig(0.07-2.0bar)	2-60psig(0.14-4.0bar)	2-100psig(0.014-7.0bar)	5-150psig(0.34-10.3bar)

2 Max import pressure

A	B	C	D	E
100psig(6.9bar)	300psig(20.7bar)	600psig(41.3bar)	1000psig(68.9bar)	3500psig(240bar)

3 Valve Body, Diaphragm Material

6L	SH	SVH	HH
SS316L / SS316L	SS316L / Hastelloy® C-22	SS316L VAR / Hastelloy® C-22	Hastelloy® C-22 / Hastelloy® C-22

4 Surface smoothness options

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

5 Orifice configuration

2PW	3PW	4PW
Two hole welding	Three hole welding	Four hole welding

6 Port end connection, inlet/outlet

FV4	MV4	T4	T6
1/4"VCR female thread	1/4"VCR male thread	1/4"Tube welding joint	3/8"Tube welding joint

7 Other options

P	VS	HF
Panel installation (hole diameter: 39.6mm)	Vespel® Sealing valve seat	High Flow

GR 1100 series

Low flow low pressure single-stage pressure reducing valve

Feature

1. Valve body material: SS316LSS, 316L VAR;
2. Metal to metal diaphragm sealing;
3. Internal electrolytic polishing, with a smoothness of up to Ra 0.13 μm (5 μin.);
4. Small internal volume;
5. Maximum inlet pressure: 300PSI; Export pressure: 100mm Hg-10PSI;
6. Maximum flow rate: 500 std cm³/s;
7. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
8. Every product undergoes helium testing before leaving the factory.



Technical Parameter

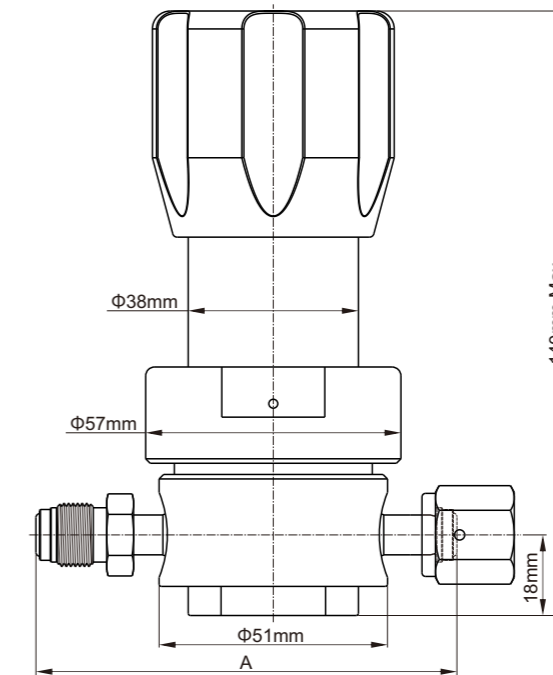
Working Pressure			
Input Pressure	Output Pressure	Verify Pressure	Blasting Pressure
Vacuum-300psig(21bar)	100mm Hg-10psig	150% of max work pressure	300% of max work pressure

Functional Characteristics									
End Connection Specs	Flow Coefficient (CV)	Internal Volume	Working Temperature		Smoothness of the flow channel	inside valve body leakage rate	outside valve body leakage rate	Valve seat leakage rate	Installation method
			PCTFE	Vesol®					
1/4" VCR 1/4"Tube 3/8"Tube	0.05	0.49 in ³ (8cm ³)	-40°C-80°C (-40°F-176°F)	-26°C-177°C (-15°F-350°F)	BA:Ra 0.25μm(10μin.) EP:Ra 0.13μm(5μin.)	≤2x10 ⁻¹⁰ std cm ³ /s	≤2x10 ⁻⁹ std cm ³ /s (Helium)	≤4x10 ⁻⁸ std cm ³ /s (Helium)	Rear seat installation or Panel installation

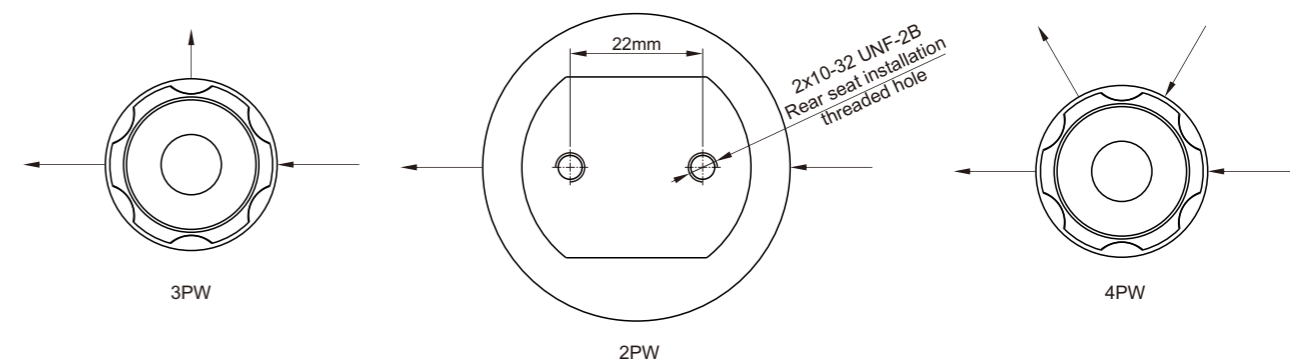
Structural Materials			
Valve Body	Diaphragm Lifting Valve Core	Surface Treatment Inside The Valve Body	Valve Seat Sealing Material
SS 316L or SS 316L VAR or Hastelloy® C-22	SS 316L or Hastelloy® C-22	Electropolishing and passivation	PCTFE or Vespel®

Size table

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



End connection specs	A size (mm)
1/4"VCR joint	94.0
1/4"Tube welding joint	75.0
3/8"Tube welding joint	75.0

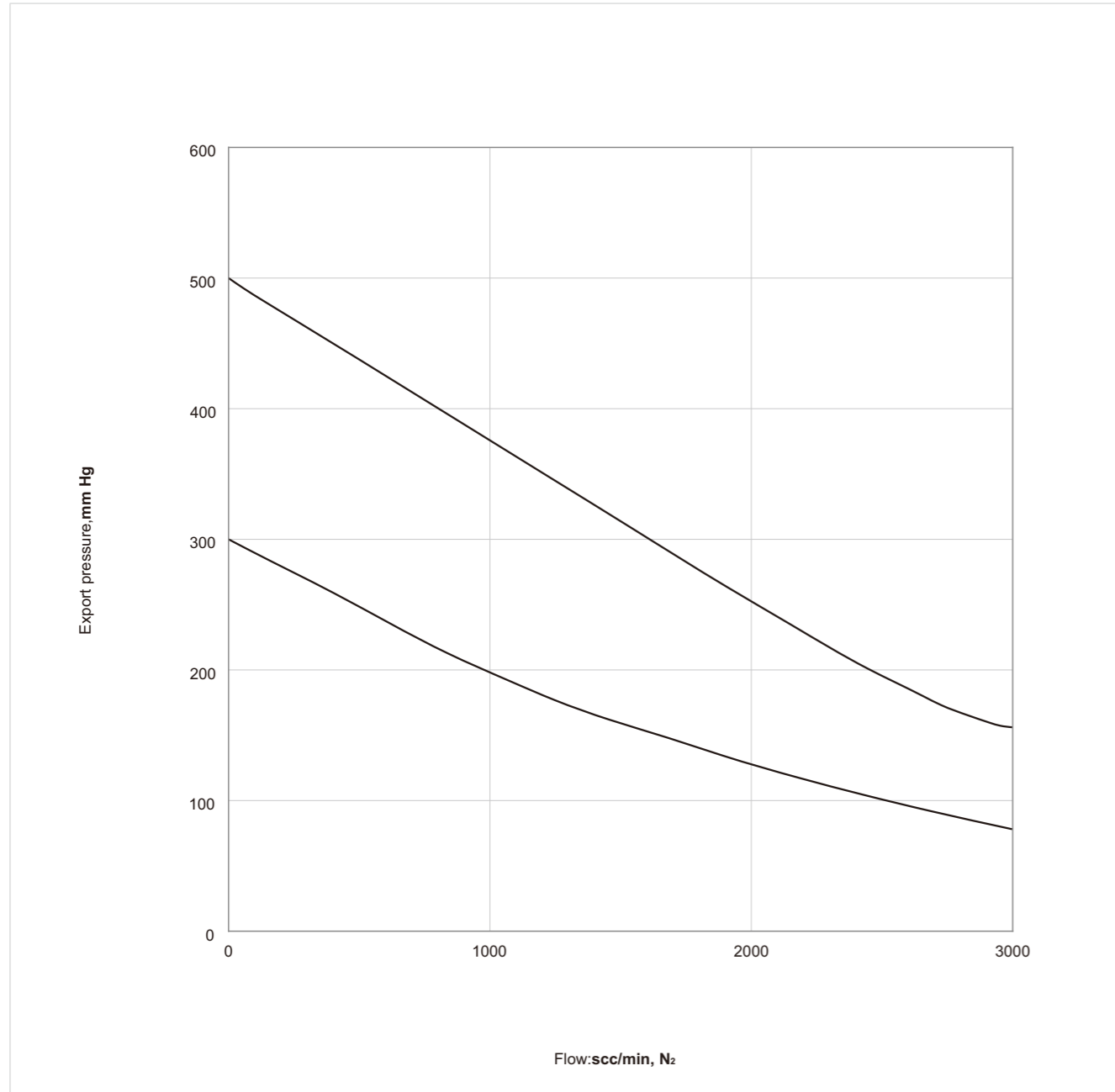


Flow curve

GR 1100 series

Inlet pressure:

■ 2psi (0.14bar)



Ordering Information

Example



1	Pressure control range	GR 1101 100mm Hg-10psig			
	Max import pressure	Blank 300psig(20.6bar)			
3	Valve Body,Diaphragm Material	6L SS316L / SS316L	SH SS316L / Hastelloy® C-22	SVH SS316L VAR / Hastelloy® C-22	HH Hastelloy® C-22 / Hastelloy® C-22
	Surface smoothness options	BA Ra 0.25µm(10µin.)		EP Ra 0.13µm(5µin.)	
5	Orifice configuration	2PW Two hole welding	3PW Three hole welding	4PW Four hole welding	
	Port end connection, inlet/outlet	FV4 1/4"VCR female thread	MV4 1/4"VCR male thread	T4 1/4"Tube welding joint	T6 3/8"Tube welding joint
7	Other options	P Panel installation (hole diameter: 39.6mm)		VS Vespel® Sealing valve seat	

GR 1200 series

high-performance - high flow - high pressure reducing valve

Feature

1. Valve body material: SS316L, SS316L VAR;
2. Metal to metal diaphragm sealing;
3. Internal electrolytic polishing, with a smoothness of up to Ra 0.13 μm (5 μin.);
4. Small internal volume;
5. Import pressure can reach: 3500PSI;
6. Maximum flow rate: SF: 800SLPM, HF: 1000SLPM, FC: 1500SLPM;
7. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
8. Every product undergoes helium testing before leaving the factory.



Technical Parameter

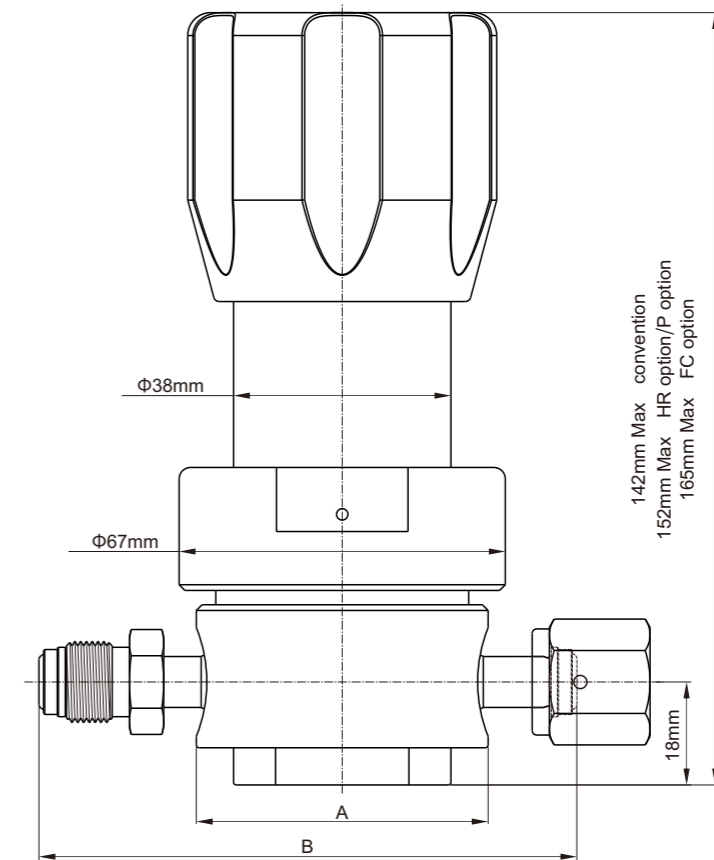
Working Pressure									
Input Pressure				Output Pressure				Verify Pressure	Blasting Pressure
GR 1200	GR 1200 HF	GR 1200 FC	GR 1200 HR	GR 1202	GR 1206	GR 1210	GR 1215		
Vacuum -1700psig (117bar) standard	Vacuum -1700psig (117bar), High Flow	Vacuum -300psig (21bar) Balanced lifting valve core	Vacuum -3500psig (240bar) High inlet pressure	1-30psig (0.07-2.0bar) Not applicable to FC and HR series	2-60psig (0.14-4.0bar) Not applicable to FC and HR series	2-100psig (0.14-7.0bar)	5-150psig (0.34-10.0bar)	150% of max work pressure	300% of max work pressure

Functional Characteristics										
End Connection Specs	Flow Coefficient (Cv)	Internal Volume	Working Temperature		Smoothness of the flow channel	inside valve body leakage rate	outside valve body leakage rate	Valve seat leakage rate	Installation method	Supply pressure efficiency
			PCTFE	Vesol®						
VCR: 1/4", 1/2", 3/4" Tube: 1/4", 3/8", 1/2", 3/4"	0.9 (HF: 1.1 FC: 0.65)	1.07 in ³ (17.6 cm ³)	-40°C-80°C (-40°F-176°F)	-26°C-177°C (-15°F-350°F)	BA:Ra 0.25μm(10μin.) EP:Ra 0.13μm(5μin.)	≤2x10 ⁻¹⁰ std cm ³ /s	≤2x10 ⁻⁹ std cm ³ /s (Helium)	≤4x10 ⁻⁸ std cm ³ /s (Helium)	Rear seat installation or Panel installation	Standard: 3.5% HF and FC: 4.2%

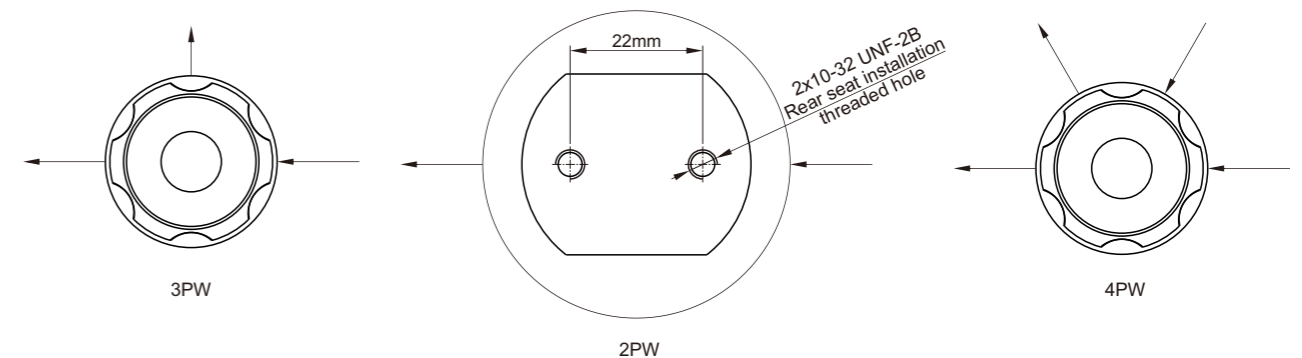
Structural Materials			
Valve Body	Diaphragm Lifting Valve Core	Surface Treatment Inside The Valve Body	Valve Seat Sealing Material
SS 316L or SS 316L VAR or Hastelloy® C-22	SS 316L or Hastelloy® C-22	Electropolishing and passivation	PCTFE or Vespe®

Size table

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



End connection specs	A size (mm)	
	A	B
1/4"VCR male thread joint	55.0	102.0
1/4"VCR female thread joint	55.0	94.0
1/2"VCR thread joint	64.0	133.0
3/4"VCR thread joint	64.0	159.0

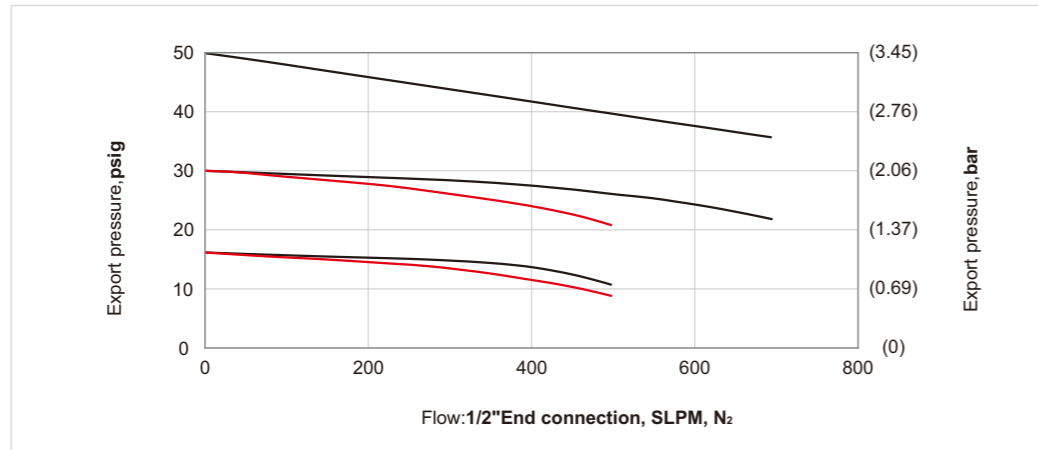


Flow curve

GR 1200 series

Inlet pressure:

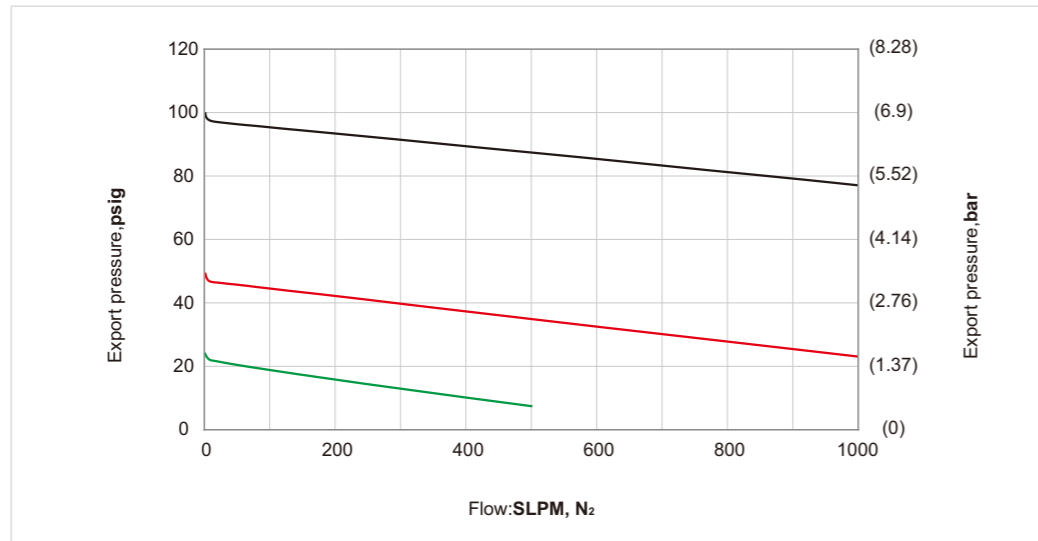
- 100psi (6.9bar)
- 80psi (5.5bar)



GR 1200 HF series

Inlet pressure:

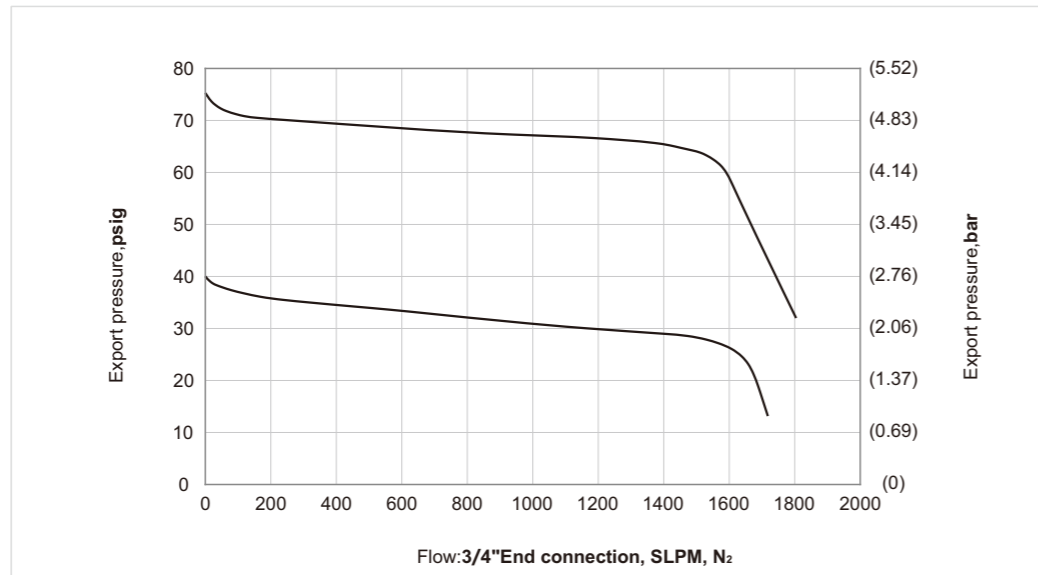
- 150psi (10.3bar)
- 100psi (6.9bar)
- 50psi (3.4bar)



GR 1200 FC series

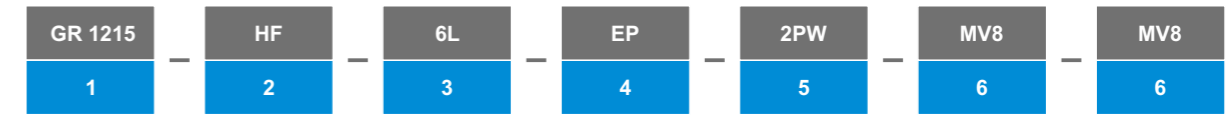
Inlet pressure:

- 150psi (10.3bar)



Ordering Information

Example



1

Pressure control range

GR 1202	GR 1206	GR 1210	GR 1215
1-30psig(0.07-2.0bar)	2-60psig(0.14-4.0bar)	2-100psig(0.14-7.0bar)	5-150psig(0.34-10.0bar)

2

Max import pressure

Blank	HF	FC	HR
1700psig(standard)	1700psig(High Flow)	300psig (Balanced lifting valve core)	3500psig(High inlet pressure)

3

Valve Body, Diaphragm material (lifting valve core)

6L	SH	SVH	HH
SS316L / SS316L	SS316L / Hastelloy® C-22	SS316L VAR / Hastelloy® C-22	Hastelloy® C-22 / Hastelloy® C-22

4

Surface smoothness options

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

5

Orifice configuration

2PW	3PW	4PW
Two hole welding	Three hole welding	Four hole welding

6

Port end connection, inlet/outlet

FV4	MV4	FV8	MV8	FV12	MV12
1/4"VCR female thread	1/4"VCR male thread	1/2"VCR female thread	1/2"VCR male thread	3/4"VCR female thread	3/4"VCR male thread

Can provide tube butt welding end connections.

7

Other options

P	VS
Panel installation (hole diameter: 39.6mm)	Vespe® Sealing valve seat

GR 1300 series

high flow pipeline pressure reducing valve

Feature

1. Valve body material: SS316L, SS316L VAR;
2. Metal to metal diaphragm sealing;
3. Internal electrolytic polishing, with a smoothness of up to Ra 0.13 μm (5 μin.);
4. Small internal volume;
5. Import pressure can reach up to 300PSI;
6. Maximum flow rate: 1000SLPM;
7. High cleanliness assembly and packaging are suitable for the high-purity semiconductor industry;
8. Every product undergoes helium testing before leaving the factory.



Technical Parameter

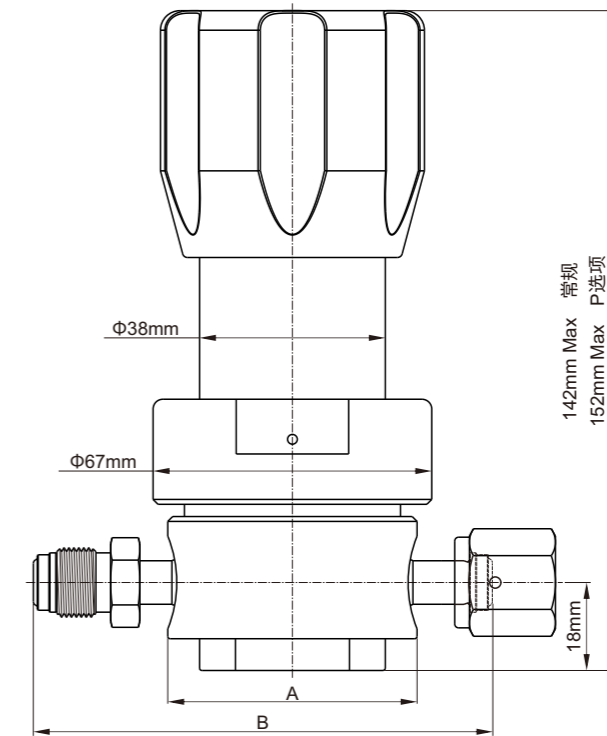
Working Pressure						
Input Pressure	Output Pressure				Verify Pressure	Blasting Pressure
GR 1300	GR 1302	GR 1306	GR 1310	GR 1315		
Vacuum-300psig(21bar)	1-30psig (0.07-2.0bar)	2-60psig (0.14-4.0bar)	2-100psig (0.14-7.0bar)	5-150psig (0.34-10.0bar)	150% of max work pressure	300% of max work pressure

Functional Characteristics										
End Connection Specs	Flow coefficient (Cv)	Internal Volume	Working Temperature		Smoothness of the flow channel	inside valve body leakage rate	outside valve body leakage rate	Valve seat leakage rate	Installation method	Supply pressure efficiency
			PCTFE	Vesol®						
VCR: 1/4", 1/2", 3/4" Tube: 1/4", 3/8", 1/2", 3/4"	1.1	1.19 in ³ (19.6 cm ³)	-40°C-80°C (-40°F-176°F)	-26°C-177°C (-15°F-350°F)	BA:Ra 0.25μm(10μin.) EP:Ra 0.13μm(5μin.)	≤2x10 ⁻¹⁰ std cm ³ /s	≤1x10 ⁻⁹ std cm ³ /s (Helium)	≤4x10 ⁻⁸ std cm ³ /s (Helium)	Rear seat installation or Panel installation	4.6%

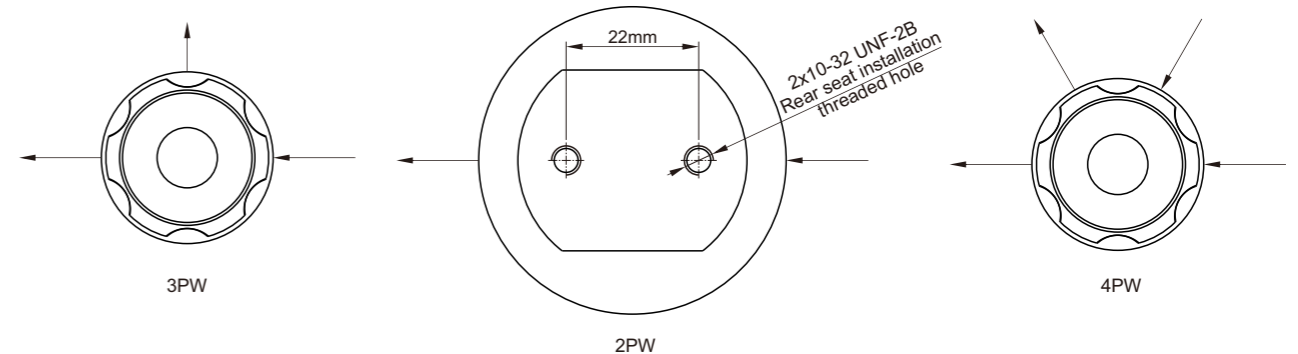
Structural Materials			
Valve Body	Diaphragm Lifting Valve Core	Surface Treatment Inside The Valve Body	Valve Seat Sealing Material
SS 316L or SS 316L VAR or Hastelloy® C-22	SS 316L or Hastelloy® C-22	Electropolishing and passivation	PCTFE or Vespel®

Size table

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



End connection specs	A size (mm)	
	A	B
1/4"VCR male thread joint	55.0	102.0
1/4"VCR female thread joint	55.0	94.0
1/2"VCR thread joint	64.0	133.0
3/4"VCR thread joint	64.0	159.0

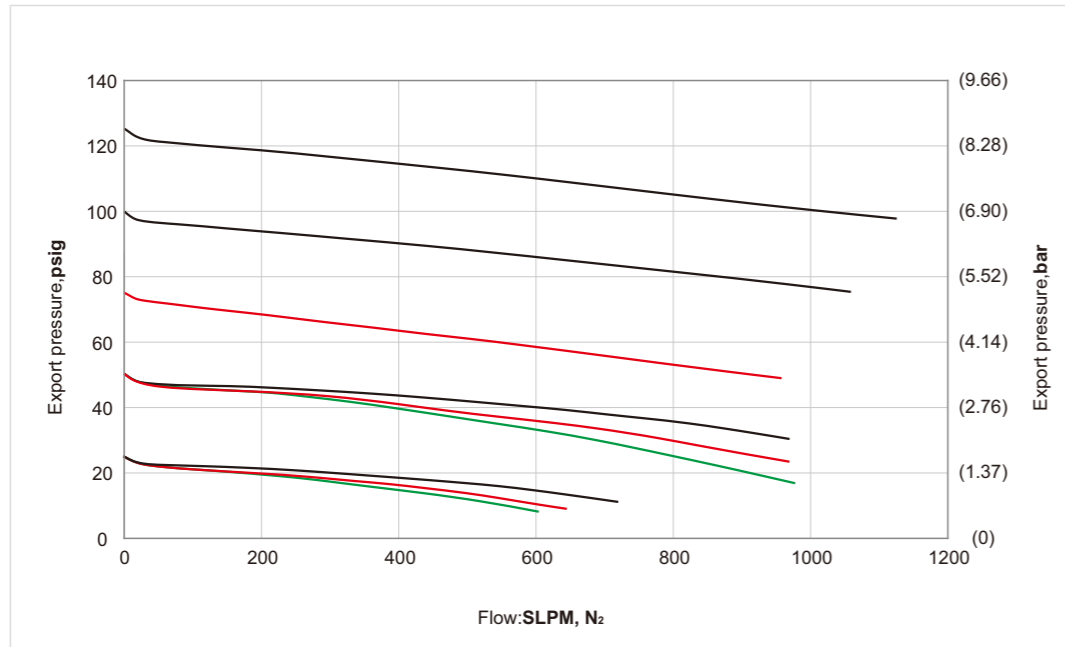


Flow curve

GR 1300 series

Inlet pressure:

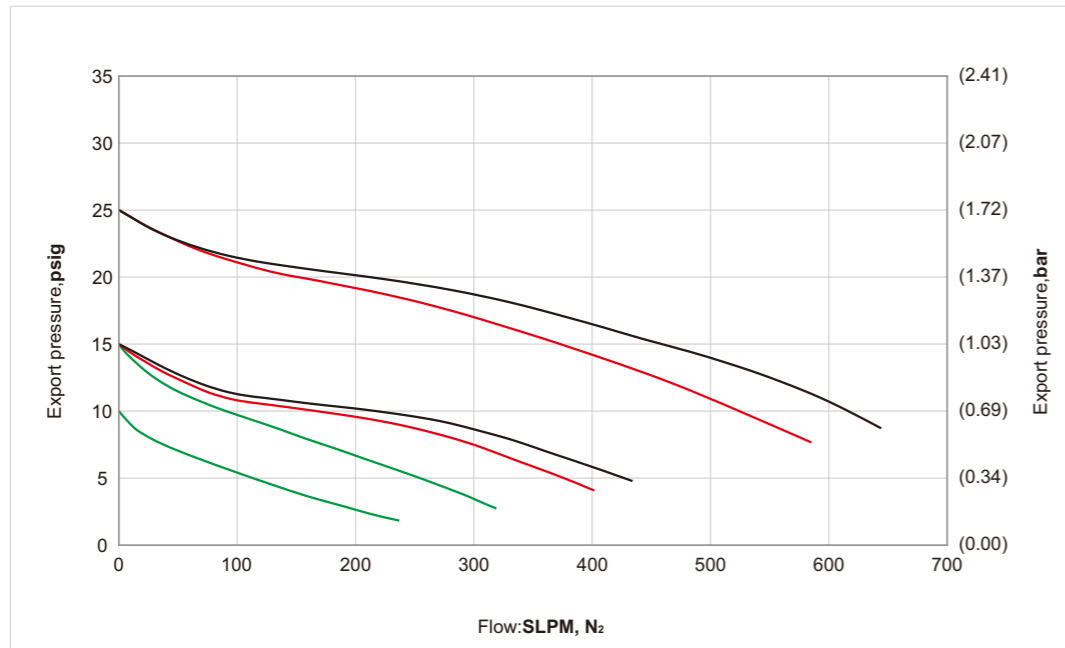
- 150psi (10.3bar)
- 100psi (6.9bar)
- 75psi (5.2bar)



GR 1300 series

Inlet pressure:

- 75psi (5.2bar)
- 50psi (3.5bar)
- 25psi (1.7bar)



Ordering Information

Example



1 Pressure control range

GR 1302	GR 1306	GR 1310	GR 1315
1-30psig(0.07-2.0bar)	2-60psig(0.14-4.0bar)	2-100psig(0.14-7.0bar)	5-150psig(0.34-10.0bar)

2 Max import pressure

Blank
300psig(standard)

3 Valve Body, Diaphragm material (lifting valve core)

6L	SH	SVH	HH
SS316L / SS316L	SS316L / Hastelloy [®] C-22	SS316L VAR / Hastelloy [®] C-22	Hastelloy [®] C-22 / Hastelloy [®] C-22

4 Surface smoothness options

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

5 Orifice configuration

2PW	3PW	4PW
Two hole welding	Three hole welding	Four hole welding

6 Port end connection, inlet/outlet

FV4	MV4	FV8	MV8	FV12	MV12
1/4"VCR female thread	1/4"VCR male thread	1/2"VCR female thread	1/2"VCR male thread	3/4"VCR female thread	3/4"VCR male thread

7 Other options

P	VS
Panel installation (hole diameter: 39.6mm)	Vespel [®] Sealing valve seat