High Purity Products

Registered Federal Government supplier

Our Strength

a) Design for manufacturing
b) Catalog wholesale
c) Logistics
d) Cost reduction

Release : 12/21/2025

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Gas Delivery Products

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Introduction

VPC brings together a consortium of regulator manufacturers who are contractors to Integrated Gas Systems (IGS). These manufacturers have been trained and certified by industry leaders such as Swagelok, TESCOM, Veriflo and Aptech. They possess advanced manufacturing processes, top-quality equipment, and significant production capacity. However, their market reach is primarily limited to local customers due to lack of exposure to broader US market. Their products are widely adopted by TSMC, Micron, Intel, Samsung and gas suppliers including Air Liquide and Air Products.

By uniting these manufacturers, we offer
a) Quick delivery
b) Competitive price
c) Good quality and reliable inventory mgmt.

All regulators and diaphragm valves use stainless steel 316L VAR, which are superior.

Hastelloy is used for corrosive gases

About us

VPC brings over 20 years of experience in resolving customers' problems and needs in the vacuum industry. Our reputation for integrity and innovation has made us a go-to supplier for customers seeking reliable solutions. We offer the same dedication to quality, efficiency and customer satisfaction in the gas delivery industry. We are committed to help customers thrive in **cost reduction** with value-driven **engineering solutions**, **inventory management**, **logistic services with reliable delivery.**

Repair & Refurbish Services

Quick Turnaround | Detoxification & Cleaning | Certified Testing

All-inclusive **Repair and Refurbish Services**, designed to restore optimal performance while keeping costs low.

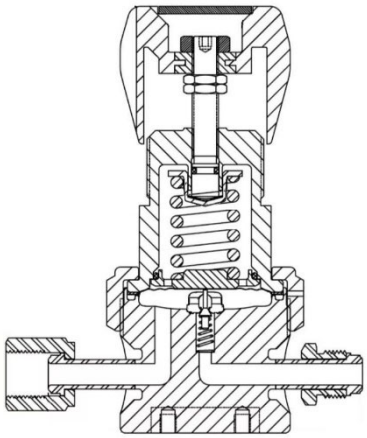
- **Fast Turnaround**: Minimize downtime with our efficient repair process.
- **Detoxify & Clean**: Ensure your regulator is free from contaminants for peak operation.
- **Rigorous Testing**: Each component undergoes thorough testing to guarantee reliability
- **Certified Excellence**: Repairs and refurbish meet industry-recognized quality standards.

Exchange Program

Take advantage of our exchange program! Swap your outdated or damaged regulator for either new or refurbished, high-performance replacements, ready to go.

Upgrade your operation's longevity and performance while staying cost-effective. Contact us today to learn more!

Pressure Regulators



A pressure-reducing regulator is a device designed to lower a high inlet pressure (P1) to a manageable outlet pressure (P2) for operational use. It ensures the outlet pressure remains stable within acceptable limits, even as source pressure and gas flow rate (Cv), fluctuate. These factors influence the regulator's accuracy and efficiency. Our **VPC regulators** have over 30 patents to ensure a leading position.

The basic structure of a regulator consists of three key components:
1. Loading Mechanism: Typically, a spring that sets the desired pressure.
2. Sensing Element: Often a diaphragm that detects pressure changes.
3. Control Element: A poppet that regulate flow.
Most regulator models are variations or modifications of these three components. Although there are hundreds of regulator models, their fundamental design remains the same. This simplified explanation provides a foundational understanding for beginners.
The choice of material depends on specific temperature and corrosion resistance requirements.

VPC series regulators are applicable to inert and corrosive gases:
For Bulk Gas: Designed for O2, H2, N2, CO2, Ar and inert gases. These are **VPC1,000** thru **VPC3,000**.
For Specialty Gas: Designed for Semi processes. See page 16-21. These are **VPC4,000** thru **VPC9,100**.
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VPC regulator has been a trusted provider of pressure regulators for over 30 years, delivering proven quality, reliability, and performance recognized by foundries and OEMs. **VPC regulators** are qualified by industry leaders such as Intel, Micron, TSMC, and major gas suppliers like Air Liquide and Air Products. Its facilities spread across multiple countries and support a wide range of applications from bulk to specialty and corrosive gases, focusing specifically in Semi, solar, and instrumentation process.

Our regulators are fully compatible and interchangeable with TESCOM and Veriflo. For cross-reference chart, refer to page 15.

Standard delivery is 4–8 weeks from receipt of order.

VPC regulators are manufactured and assembled under Class 100 clean room.

VPC Regulators holds ISO 9001:2008 certification, ensuring adherence to rigorous international quality standards.

Regulators

VPC1000 Series — Pressure Reducing Regulator

This is a versatile, compact regulator for both high and low pressure applications controlling a broad range of corrosive and non-corrosive gases.

Material of Construction

Wetted

Body.....SS 316L VAR
Poppet.....SS 316L VAR
Poppet Spring.....Inconel® 625
Nozzle Assy.....SS 316L VAR
Nozzle Assy Seal.....PCTFE /Teflon®
Seat .....SS 316L VAR
Diaphragm.....SS 316L / Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet..... 4,000 psig (240 barg)
Outlet.....1~30 psig (0.06~2 barg) adjustable
2-100 psig (7 barg)
3~150 psig (10barg)
5~300 psig (21barg)
10~500 psig (34barg)
Temp.....-40°F to 150°F (-40°C to 66°C)

Functional Performance

Flow Capacity.....C_V = 0.2/0.15/ 0.06
(ANSI/ISA S75.02 1988 using water)
Design Leak Rate:
Outboard.....$1x10^{-9}$ scc/sec He
Inboard.....$2x10^{-10}$ scc/sec He
Across the Seat.....$4x10^{-9}$ scc/sec He
Supply Pressure Effect.....0.5 psig (0.03 barg)
per 100 psig (6.8 barg)

Surface Finishes

Standard Ra.....15-10µin
(0.38-0.25µm)

Approximate Weight

2.42 lbs (1.1kg)

Features

- Instrument grade construction.
- Precise control of high purity gases and liquids.
- Tough rated for 4,000 psig (275bar) supply pressure for cylinder use, it functions equally well with low supply pressure for point-of-use applications.
- Self-contained valve seat assembly.

Optional Features

- Pressure gauges, panel mounting, CGA fittings, relief valve and dome loading.

VPC2000 is designed and engineered for the control of high purity, corrosive, toxic, flammable and inert gases at a high flow rate and low inlet pressure.

Features

- The high purity SS316L, Stainless Steel™, that enhances electropolishing, welding and corrosion resistance.
- Internally electropolished.
- Connections are welded to the regulator body by autogenous butt welding. This process eliminates small cavities that could create long-term "virtual leaks" and affect the purity of the process gas.
- The **VPC2000** was designed to withstand an internal vacuum without distortion of the diaphragm or deterioration of the seat and seal.
- The low leakage rates of the **VPC2000** series eliminates the back diffusion of atmospheric contamination into the system.

Material of Construction

Wetted

Body .....SS 316L VAR
Diaphragm.....SS 316L / Hastelloy C-22
Seat.....SS 316L VAR
Seal..... PCTFE /Teflon®

Non-Wetted

Cap.....stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet.....500 psig (35 barg)
Outlet.....1~30 psig (2 barg)
5~150 psig (10 barg)
Temp .....40°F to 150°F (-40°C to 65°C)

Functional Performance

Design Burst Pressure.....1,500 psig (105 barg)
Design Proof Pressure.....750 psig (51 barg)
Flow Capacity.....C_V = 1.0/0.85
(SEMI Flow Coefficient Test# F-32-0998)
Design Leak Rate:
Outboard.....$2x10^{-9}$scc/sec He
Inboard.....$2x10^{-9}$scc/sec He
Supply Pressure Effect.....4 psig (0.3 barg)
per 100 psig (6.8barg)

Standard Configurations

½" Face Seal Fitting to 25 A
(Compression Fittings)
See Regulator Porting Guide for other available options.

Internal Volume

2.33in^3 (38cc)

Surface Finishes

Standard Ra..... .....15-10 µin
(0.38-0.25 µm)

Approximate Weight

3.96 lbs (1.8kg)

VPC2000 is designed and engineered for the control of high purity, corrosive, toxic, flammable and inert gases at a high flow rate and low inlet pressure

Features

- The high purity SS316L, Stainless Steel™, that enhances electropolishing, welding and corrosion resistance.
- Internally electropolished.
- Connections are welded to the regulator body by autogenous butt welding. This process eliminates small cavities that could create long-term "virtual leaks" and affect the purity of the process gas.
- The **VPC2000** was designed to withstand an internal vacuum without distortion of the diaphragm or deterioration of the seat and seal.
- The low leakage rates of the **VPC2500** series eliminates the back diffusion of atmospheric contamination into the system.

Material of Construction

Wetted

Body.....SS 316L VAR
Diaphragm.....SS 316L/Hastelloy C-22
Seat.....SS 316L VAR
Seal.....PCTFE /Teflon®

Non-Wetted

Cap.....Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet.....500 psig (35 barg)
Outlet.....1~30 psig (2 barg)
5~150 psig (10 barg)
Temp.....-40°F to 150°F (-40°C to 65°C)

Functional Performance

Design Burst Pressure.....1,500 psig (105 barg)
Design Proof Pressure.....750 psig (51 barg)
Flow Capacity.....C_V =1.8/1.0/0.85
(SEMI Flow Coefficient Test# F-32-0998)
Design Leak Rate:
Outboard.....$2x10^{-9}$scc/sec He
Inboard.....$2x10^{-9}$scc/sec He
Supply Pressure Effect.....4 psig (0.3.barg)
per 100 psig (6.8.barg)

Standard Configurations

1" Tube Stub to 50A Pipe

See Regulator Porting Guide for other available options.

Internal Volume

2.33in^3 (38cc)

Surface Finishes

Standard Ra.....15-10 µin
(0.38-0.25 µm)

Approximate Weight

5.28 lbs (2.4 kg)

The **VPC3000** is a high purity, pressure reducing facility regulator. It is design ed to regulate a large volume of gaseous media at low pressure. The regulator has an extremely high flow capacity of CV = 5/10/ 20.

Features

- Flow capacity Cv = 5 / 10 / 15 /20.
- Maximum inlet pressure of300 psig.
- Outlet pressure ranges of 0-30 psig and 0-150 psig.
- Design maximum inboard leak rate of $1x10^{9}$scc/sec He.
- SS316 stainless steel welded body construction.
- 15µin (0.375µm) internal surface finish for standard units.
- Bulk handling of high purity gases N_2 Blanketing.

Material of Construction

Wetted

Body..... .....SS 316LVAR
Poppet ....SS 316L VAR
Seat..... .....PCTFE / Vespel® / Peek
Buna-N90 / EP 80
Diaphragm.....SS316L/HastelloyC-22

Non-Wetted

Cap..... Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet.....300 psig(21 barg)
Outlet.....0~30 psig (2 barg)
0~150 psig (10 barg)
Temp .....-20°F to 165°F (-28°C to 73°C)

Functional Performance

Flow Capacity.....C_V=5/10/15/20
(ANSI/ISA S75.02 1988 using water)
Design Leak Rate:
Outboard.....$1x10^{-9}$scc/sec He
Inboard ....$1x10^{-9}$scc/sec He
Across Seat.....$4x10^{-9}$scc/sec He
Supply Pressure Effect.....0.5 psig(0.03 barg)
per 100 psig (6.8 barg)

Surface Finishes

Standard Ra ....15-10 µin
(0.38-0.25 µm)
Standard Connections
End to End.....Welded female/male VCR®
tube stubs, flange
Gauges .....VCR®/ NPT
(internal style of VCR®, compatible with male swivel VCR®)

Approximate Weight

15 lbs (6.8 kg)

VPC4000 was created in response to the need for high performance point-of-use regulators for modern semiconductor. Precise control of the gas discharge pressure at or near the tool served, makes possible for stable process control by a mass controller

Features

- High Flow capacity with minimal pressure drop and low supply pressure.
- Hurricane cleaning for "near absolute" contamination control.
- Capable of operating at a wide range of flow from 0.5cc/min to more than 800liters/min.
- Design and materials of construction ensure compatibility with high flowing corrosive gas.

Material of Construction

Wetted

Body.....SS 316L VIM/VAR
Diaphragm.....Hastelloy C-22
Seat .....SS 316L VIM/VAR
Seal .....PCTFE

Non-Wetted

Cap.....Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet.....600 psig (41.4 barg)
Outlet.....5~150 psig (10.3 barg)
Temp .....-40°F to 150°F (-40°C to 65°C)

Functional Performance

Design Burst Pressure.....1,500 psig (105 barg)
Design Proof Pressure .....750 psig (51 barg)
Flow Capacity .....C_V=1.0
(SEMI Flow Coefficient Test # F-32-0998)
Design Leak Rate:
Outboard.....$1x10^{-9}$scc/sec He
Inboard.....$1x10^{-9}$scc/sec He
Supply Pressure Effect .....4 psig (0.3barg) per 100 psig (6.8 barg)

Standard Configurations

¼", ⅜", ½", ¾", 1" Tube Stub
½", ¾", 1" Face Seal Fittings
See Regulator Porting Guide for other available options.

Surface Finishes

Standard Ra.....10 µin (0.254 µm)

Approximate Weight

4.6 lbs (2.1 kg)

This regulator controls pressure flows accurately and predictably without changing the liquids or gases and without adding particles or ions to the flowing material

Features

- Instrument grade construction.
- Precise control of high purity gases and liquids.
- Rate for 4000 psig (275 barg) supply pressure for cylinder use, it functions equally well with low supply pressure for point-of-use applications.
- Self-contained valve and seat assembly.
- Metal-to-Metal diaphragm to body seal assures high leak integrity.
- Minimal particle generation and entrapment.
- High cycle life.
- 100% helium leak tested.

Material of Construction

Wetted

Body.....SS 316L VIM/VAR
Poppet.....SS 316L VIM/VAR
Poppet Spring.....Inconel® 625
Nozzle Assy.....SS 316LVIM/VAR
Seat.....SS 316L VIM/VAR
Seal.....PCTFE
Diaphragm.....Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet.....4,000 psig (275 barg)
Outlet.....1~30 psig (0.06~2 barg) adjustable
2~100 psig (7 barg)
5~300 psig (21 barg)
Temp.....-40°F to 150°F (-40°C to 65°C)

Functional Performance

Flow Capacity.....C_V =0.15/0.06
(ANSI/ISA S75.02 1988 using water)
Design Leak Rate:
Outboard.....$1x10^{-9}$scc/sec He
Inboard.....$2x10^{-9}$scc/sec He
Across Seat.....$4x10^{-9}$scc/sec He
Supply Pressure Effect.....0.5 psig (0.03 barg)
per 100 psig (6.8 barg)

Surface Finishes

Standard Ra..... 10 µin
(0.254 µm)
Optional Ra.....EX=5 µin (0.125 µm)

Approximate Weight

2.4 lbs (1.1kg)

The **VPC7500** Series two stage Pressure Regulator is designed to provide constant outlet pressure regardless of inlet pressure fluctuations.

Features

- Excellent decaying inlet characteristic: .06/100 psig inlet change
- Positive seal design.
- Captured bonnet ports.
- Both diaphragms are convoluted for greater accuracy and sensitivity.

Material of Construction

Wetted

Body.....SS 316L
Poppet.....SS 316L
Nozzle Assy.....SS 316L Nozzle
Assy Seal.....PCTFE/Teflon
Seat.....SS 316L
Diaphragm.....SS316L/Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Knob .....Alum. Powder Coated

Operating Conditions

Max. Inlet.....4,000 psig (275 barg)
Outlet.....2~30 psig (2 barg)
2~100 psig (7 barg)
3~250 psig (17 barg)
5~500 psig (34 barg)
Temp .....-40°F to 150°F (-40°C to 65°C)

Material of Construction

Wetted

Body.....SS 316L
Poppet.....SS 316L
Nozzle Assy.....SS 316L Nozzle
Assy Seal.....PCTFE/Teflon
Seat.....SS 316L
Diaphragm.....SS316L/Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Knob .....Alum. Powder Coated

Operating Conditions

Max. Inlet.....4,000 psig (275 barg)
Outlet.....2~30 psig (2 barg)
2~100 psig (7 barg)
3~250 psig (17 barg)
5~500 psig (34 barg)
Temp .....-40°F to 150°F (-40°C to 65°C)

The **VPC9000** Series is designed to regulate or relieve the upstream pressure in continuous circulation loops. It prevents overpressure situations from occurring which could damage valuable equipment or disturb the process

Features

- High flow Cv = 200 low droop.
- Diaphragm sensing element maintains very accurate downstream.
- 15 Ra microinch internal surface finishes with full internal polished.
- 316L stainless steel construction.
- Spring/wrench-adjusted and air-actuated.
- Welded sanitary connections, tubes and flanges available

Material of Construction

Wetted

Body.....SS 316L
Poppet.....SS 316L
Nozzle Assy.....SS 316L
Nozzle Assy Seal .....PCTFE /Teflon
Seat.....SS 316L
Diaphragm.....SS 316L + PTFE

Non-Wetted

Cap.....Stainless Steel

Operating Conditions

Max. Inlet.....200 psig (14bar)
Outlet..... ....15~70 psig (2bar)
65~150 psig (10bar)
Temp .....-40°F to 150°F (-40°C to 65°C)

Functional Performance

Flow Capacity.....C_V =200
(ANSI/ISA S75.02 1988 using water)
Design Leak Rate:
Outboard.....$1x10^{-8}$scc/sec He
Inboard ....$2x10^{-8}$scc/sec He
Across Seat .....$4x10^{-6}$scc/sec He
Supply Pressure Effect.....5.0 psig
per 100 psig (6.8barg)

Standard Connections

Connections 2"~6" inlet and outlet welded sanitary tube tubes and flanges

Surface Finishes

Standard Ra ....15-10 µin
(0.38-0.25 µm)

Approximate Weight

Body net weight 286 lbs (130kg)

This regulator design is based on the process-proven Micro Series and incorporates a new poppet and seat allowing increased flow capacity of 100slpm.

Material of Construction

Wetted

Body .....SS 316L VIM/VAR
Poppet .....SS 316L VIM/VAR
Seat .....SS 316L VIM/VAR
Seal.....PCTFE
Diaphragm.....Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Adjusting Screw.....Stainless Steel
Knob .....Alum. Powder Coated

Operating Conditions

Max. Inlet..... ..250 psig (17 barg)
Outlet ....-10 in Hg ~ 60 psig
(250 torr ~ 4 barg)
Temp .....-40°F to 150°F (-40°C to 65°C)

Features

- Flow capacity to 100slpm.
- Standard Hastelloy C-22® poppet and diaphragm.
- Minimized footprint, internal volume, and surface area.
- Delivers most of the outstanding performance of the **VPCMicro**, despite the size reduction.
- Dimensions are interchangeable with Veriflo Quantum valves.
- No wetted spring.
- No threads exposed to the wetted area.
- Standard full internal electropolish.

Functional Performance

Flow Capacity.....C_V =0.06
(SEMI Flow Coefficient Test # F-32-0998)
Design Leak Rate:
Outboard.....$1x10^{-9}$scc/sec He
Inboard.....$1x10^{-10}$scc/sec He
Across Seat.....$5x10^{-8}$scc/sec He
Design Proof Pressure.....375 psig (26 barg)
Design Burst Pressure.....750 psig (52 barg)

Surface Finish

Standard Ra.....5 µin (0.125 µm)

Approximate Weight

1.0 lb (0.45 kg)

The VPC Micro SM Series provides stability and sensitivity for Surface Mount Systems and all the performance benefits to modular design.

Features

- Meets SEMI Modular Interface specifications.
- Flow capacity up to 30 slpm.
- Gas system foot print reduction.
- Reduced wetted volume.
- Ease of component retrofit.
- Standard surface finish 5µin (0.125µm).
- No threads exposed to the wetted area.
- Standard full internal electropolish.

Material of Construction

Wetted

Body.....SS 316L VAR
Poppet.....SS 316L VAR
Seat.....SS 316L VAR
Seal.....PCTFE
Diaphragm.....SS 316L / Hastelloy C-22

Non-Wetted

Cap.....Stainless Steel
Adjusting Screw.....Stainless Steel
Knob.....Alum. Powder Coated

Operating Conditions

Max. Inlet ..... 250 psig (17 barg)
Outlet ....-10 in Hg ~ 60 psig
(250 torr ~ 4 barg)
Temp .....-40°F to 150°F (-40°C to 65°C)

Functional Performance

Flow Capacity..... ..... C_V =0.06
(SEMI Flow Coefficient Test # F-32-0998)
Design Leak Rate:
Outboard.....$2x10^{-9}$ scc/sec He
Inboard.....$2x10^{-10}$ scc/sec He
Across Seat.....$5x10^{-8}$ scc/sec He
Design Proof Pressure.....375 psig (26 barg)
Design Burst Pressure.....750 psig (52barg)

Surface Finish

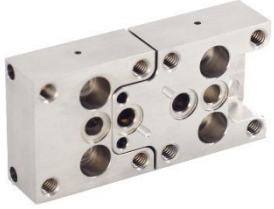
Standard Ra ....5 µin (0.125 µm)

Standard Connections

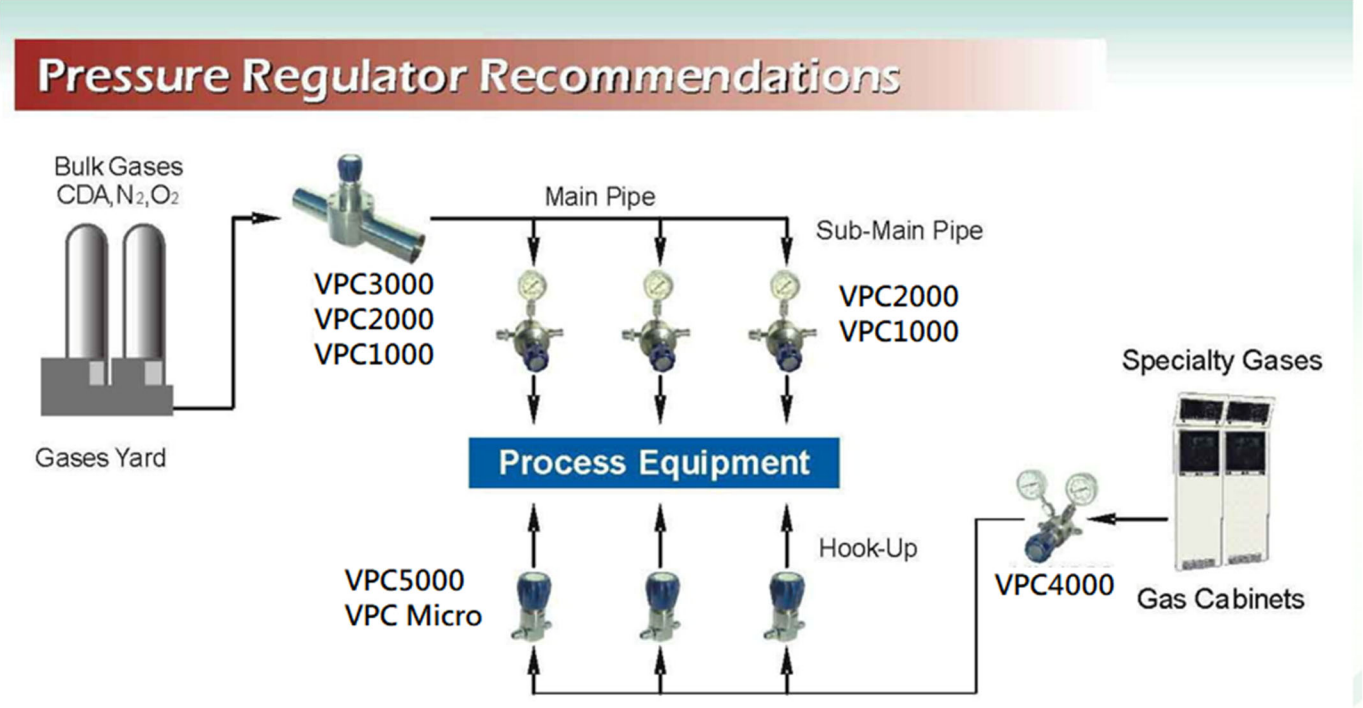
SEMI modular interface

Approximate Weight

0.75 lbs (0.34 kg)



Gas Distribution System and Regulator Recommendation



All regulators and diaphragm valves use stainless steel 316L VAR, as a standard material which are superior.

Hastelloy is used for corrosive gases.

Flow Capacity (CV)	Regulator Series	Application		Inlet/Outlet Connector size	Connector size
0.15-0.2	VPC 1000	Bulk Gas system with non-taxic gas	Gas cylinder, Sub pipe	4000 PSIG/30,100,300,500 PSIG	¼" to ½"
0.85	VPC 2000		Main & Sub pipe	500 PSIG/30,150 PSIG	½" to ¾"
1.8	VPC 2500		Main & Sub pipe	500 PSIG/30.150 PSIG	½" to 25A
5.0-8.0	VPC 3000		Main pipe	300 PSIG/50,250 PSIG	1" to 25A
0.06 -1.55	VPC 4000	Specialty Gas system	Hook-up, Point of Use	250 PSIG/Vacuum to 30,100 PSIG	¼" to ¾"
0.06	VPC 5000		Gas Cabinets	4000 PSIG/20,100,300,500 PSIG	¼" to ½"
0.06	VPC Micro		Hook-up/Equipment	250 PSIG/Vacuum to 30,100 PSIG	¼"

Cross-Reference table

	Economic	High Flow	Extreme High Flow	UHP High Performance
Pressure Range	4000 psig IN	500 psig IN	300 psig IN	250 psig IN
	30, 100,300, 500 psig	30, 150 psig	30, 150 psig	30, 100 psig
Flow Capacity	0.13	0.86	0.5	0.06 ~ 1.55
Size	¼" ~ ½"	¼" ~ 1"	¾" ~ 2"	¼" ~ 1"
VPC	**VPC 1000**	**VPC 2000**	**VPC 3000**	**VPC 4000**
VERIFLO	IR & QR Series	HFR Series	BFR Series	SQ Series
TESCOM	44 & 64-22 ~2800Series	44 & 64-3200 Series	DH Series	74-30 ~ 3800 Series
SWAGELOK	RS2 & KLF & KPR Series	RS4 & KPF & KHF Series	RS 10 & 15 Series	None
APTECH	AP1000 ~ 1600 Series	AP1400 & 1800 Series	None	SL5400 & 5800 Series

	UHP High Pressure	Two Stage	Gas Yard	UHP Micro
Pressure Range	4000 psig IN	4000 psig IN	200 psig IN	250 psig IN
	30, 100 psig	30, 100, 300, 500 psig	60, 150 psig	30, 60 psig
Flow Capacity	0.06	0.13	10 ~ 200	0.06
Size	¼" ~ ½"	¼" ~ ½"	2" ~ 6"	¼"
VPC	**VPC 5000**	**VPC 7500**	**VPC 9100**	**VPC MICRO**
VERIFLO	SQHP Series	735 Series	None	SQ Micro Series
TESCOM	74-2400 & 23 Series	44 & 64-3400 Series	FR1000 & 15 Series (Max 2")	12 Series
SWAGELOK	None	F82 & KCY Series	None	None
APTECH	SL 5400 & 5500 Series	AP 1700 & 2700 Series	None	SL5200 Series

Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Acetylene (C_2H_2)	---	Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	---
Air (CDA)	---	Inert	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	580	---
Ammonia (NH_3)	114 psig (7.9 barg)	Corrosive Toxic	VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	705	720
Argon (Ar)	120 psig (8.3 barg) 2,640 psig (182 barg)	Inert	VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 2500 VPC 2500C VPC 3000 VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 4000 VPC 5000	580	718
Arsine (AsH_3)	205 psig (14.1 barg)	Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	350	632
Arsine Mixtures	2,100 psig (144.8 barg)	Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	---
Arsinic Pentafluoride (AsF_5)	---	Flammable Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	---	642
Boron Trichloride (BCl_3)	4.4 psig (0.30 barg)	Corrosive Toxic	---	VPC 1000 VPC 2000	VPC 4000 VPC 5000	660	634
Boron Trichloride Mixtures	1,000 psig (68.9 barg)	Irritant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	---
Boron-11 Trifluoride ($^{11}BF_3$)	1,600 psig (110.3 barg)	Irritant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	642
Boron-11 Trifluoride Enriched ($^{11}BF_3$)	417 psig (28.8 barg)	Corrosive Irritant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	642
Butane (C_4H_{10})	16 psig (1.1 barg)	Flammable	VPC 1000	---	---	510	---
Carbon Dioxide (CO_2)	830 psig (57.2 barg)	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	320	716
Carbon Monoxide (CO)	2,000 psig (137.9 barg)	Flammable Toxic	VPC 7500 VPC 1000	---	---	350	724

Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Carbon Tetrachloride (CCl_4)	---	Toxic	VPC 1000NPR	VPC 1000NPR	---	---	---
Chlorine (Cl_2)	86 psig (5.9 barg)	Irritant Oxidizer Toxic	VPC 7500 VPC 1000	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	728
Chlorine Mixtures	2,20 0psig (151.7barg)	Corrosive Oxidant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	---
Cyclopropane ($C_3H_{6)}$	---	Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	---
Deuterium (D or ^2H)	985 psig (67.9 barg)	Flammable	VPC 7500 VPC 1000	---	---	350	---
Diborane (B_2H_6)	2,200 psig (151.7 barg)	Flammable Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	350	632
Dichloro-silane (H_2SiCl_2)	9.5 psig (0.65 barg)	Flammable Toxic	---	VPC 7500NPR VPC 1000NPR	VPC 1000NPR	678	636
Diethylzinc ($C_4H_{10}Zn$)	---	Irritant Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	726
Diethyl-telluride ($C_4H_{10}Te$)	---	Combustible Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	---	726
Dimethylzinc (C_2H_6Zn)	---	Ignition	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	---	726
Disilane (H_6Si_2)	39 psig (2.3 barg)	Toxic	---	VPC 1000	VPC 4000 VPC 5000	---	632
Disilane Mixtures	2,200 psig (151.7 barg)	Corrosive Oxidant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	----
Ethane (C_2H_6)	544 psig (37.5 barg)	Flammable	VPC 7500 VPC 1000	---	---	350	---
Ethyl Chloride (C_2H_5Cl)	5.6 psig (0.40 barg)	Flammable	VPC 7500NPR VPC 1000NPR	---	---	510	---
Ethylene (C_2H_4)	---	Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	350	---
Ethylene Oxide (C_2H_4O)	---	Flammable Irritant Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	---

Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Fluoride (F_2)	400 psig (27.6 barg)	Irritant Oxidizer Toxic	---	---	---	670 679	---
Germane (GeH_4)	53 psig (3.6 barg)	Flammable Toxic	---	VPC 7500	VPC 4000 VPC 5000	350 660	632
Germane Mixtures	2,200 psig (151.7 barg)	Flammable Toxic	---	VPC 1000 VPC 2000	VPC 4000 VPC 5000	---	---
Halocarbon-11 (CCl_3F)	---	Inert	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	660	716
Halocarbon-12 (CCl_2F_2)	70 psig (4.8 barg)	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	660	716
Halocarbon-13 ($CClF_3$)	460 psig (31.7 barg)	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	660	716
Halocarbon-14 (CF_4)	---	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	320 580	716
Halocarbon-22 ($CHClF_2$)	121 psig (8.3 barg)	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	660	716
Halocarbon-23 (CHF_3)	635 psig (43.8 barg)	Inert	---	VPC 1000	VPC 4000 VPC 5000	660	716
Halocarbon-115 (C_2ClF_5)	121 psig (8.3 barg)	Inert	---	VPC 1000	VPC 4000 VPC 5000	660	716
Halocarbon-116 (C_2F_6)	430 psig (29.7 barg)	Inert	VPC 1000	VPC 1000	VPC 4000 VPC 5000	660	716
Helium (He)	120 psig (8.3 barg) 2,640 psig (182.1 barg)	Inert	VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 2500 VPC 2500C VPC 3000	VPC 1000 VPC 2000	580	718

Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Hydrogen (H_2)	120 psig (8.3 barg) 2,400 psig (165.5 barg)	Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 2500 VPC 2500C VPC 3000 VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 4000 VPC 5000	350	724
Hydrogen Bromide (HBr)	320 psig (22.0 barg)	Irritant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	634
Hydrogen Chloride (HCl)	613 psig (42.3 barg)	Corrosive Toxic	VPC 1000 VPC 7500	VPC 7500 VPC 1000	VPC 4000 VPC 5000 VPC 1000	330	634
Hydrogen Chloride Mixtures	2,100 psig (144.8 barg)	Corrosive Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	---
Hydrogen Fluoride (HF)	---	Corrosive Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	660 670	638
Hydrogen Sulfide (H_2S)	253 psig (17.4 barg)	Irritant Toxic	VPC 1000 VPC 7500	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	722
Iso-Butane (C_4H_{10})	---	Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	---
Krypton (Kr)	1,340 psig (92.4 barg)	Asphyxiant	VPC 7500 VPC 1000	---	---	580	718
Methane (CH_4)	2,400 psig (165.5 barg)	Flammable	VPC 7500 VPC 1000	---	---	350	---
Methyl Chloride (CH_3Cl)	59 psig (4.1 barg)	Flammable Toxic	VPC 1000	---	---	660	---
Natural Gas (CNG)	---	Combustible Flammable	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	350	---
Neon (Ne)	2,200 psig (152.0 barg)	Inert	VPC 7500 VPC 1000	---	---	580	718
Nitric Oxide (NO)	---	Oxidant	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	660	---

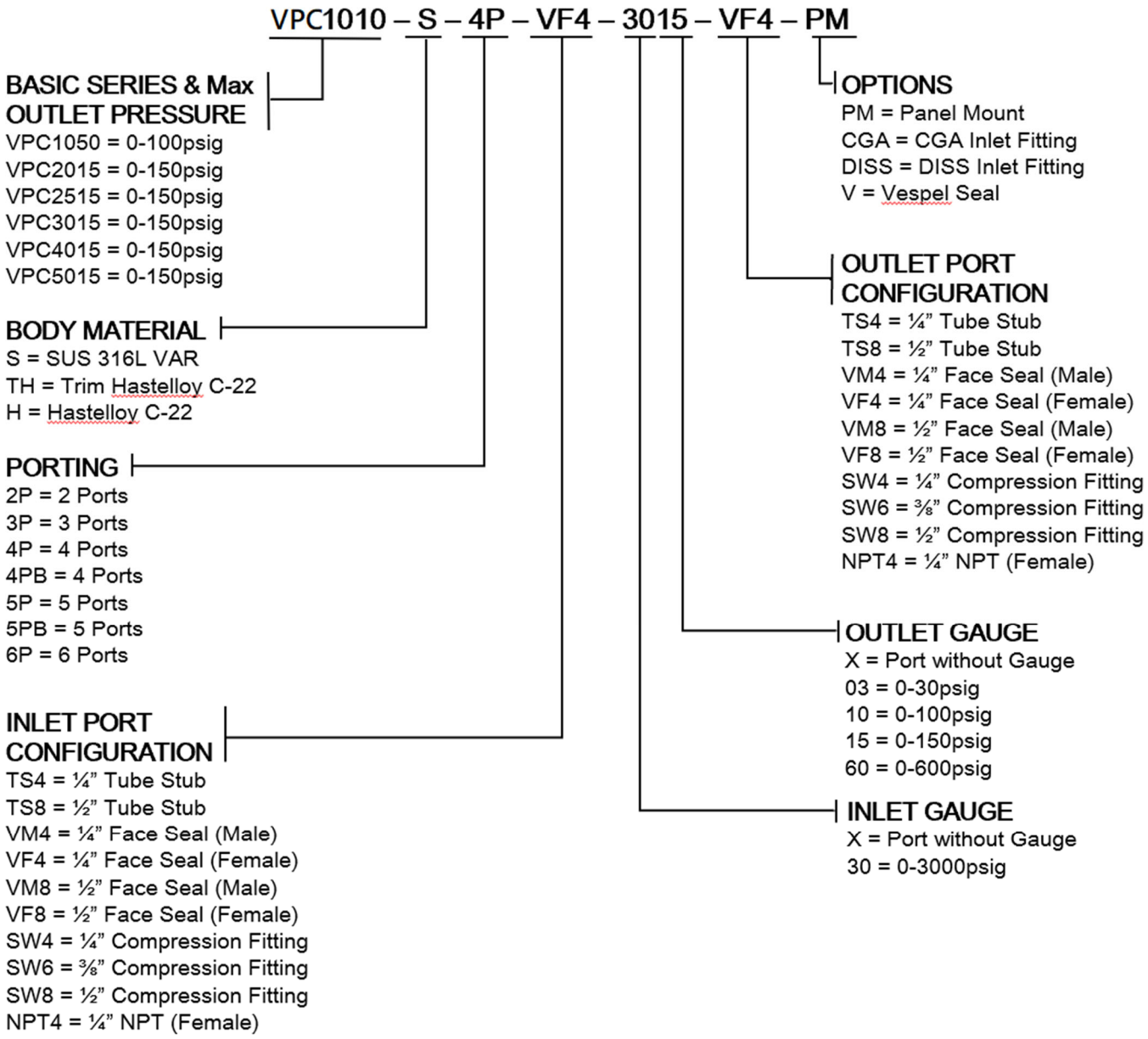
Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Nitrogen (N_2)	120 psig (8.3 barg) 2,640 psig (182.0 barg)	Inert	VPC 7500 VPC 1000 VPC 2000	VPC 1000 VPC 2000 VPC 2500 VPC 2500C VPC 3000 VPC 9000 VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 4000 VPC 5000	580	718
Nitrogen Trifluoride (NF_3)	1,450 psig (100 barg)	Oxidizer Toxic	VPC 7500 VPC 1000	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330 670	640
Nitrous Oxide (N_2O)	745 psig (51.4 barg)	Oxidizer	VPC 7500 VPC 1000	VPC 7500 VPC 1000	VPC 4000 VPC 5000	326	712
Oxygen (O_2)	120 psig (8.3 barg) 2,640 psig (182.0 barg)	Avoid Contact with Combustibles	VPC 7500 VPC 1000 VPC 2000	VPC 1000 VPC 2000 VPC 2500 VPC 2500C VPC 3000 VPC 7500 VPC 1000	VPC 1000 VPC 2000 VPC 4000 VPC 5000	540	714
Perfluoro-propane (C_3F_8)	100 psig (6.9 barg)	Asphyxiant	---	VPC 1000	VPC 4000 VPC 5000	660	716
Phosphine (PH_3)	592 psig (40.8 barg)	Flammable Poison	VPC 7500	VPC 7500 VPC 1000	VPC 4000 VPC 500	350 660	632
Phosphine Mixtures	590 psig (40.7 barg)	Flammable Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	----
Phosphorus Pentafluoride (PF_5)	400 psig (27.6 barg)	Irritant Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330 660	642
Propane (C_3H_8)	110 psig (7.6 barg)	Flammable	VPC 1000	VPC 1000	---	510	---
Propylene (C_3H_6)	136 psig (9.4 barg)	Flammable	VPC 1000	VPC 1000	---	510	---
Silane (SiH_4)	1,250 psig (86.2 barg)	Flammable Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	350	632
Silane Mixtures	2,100 psig (144.8 barg)	Flammable Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	---	---

Applications

GAS	PRESSURE	HAZARDS	LABS / INDUSTRIAL	HP SEMI	UHP SEMI	CGA Size	DISS Size
Silicon Tetrachloride ($SiCl_4$)	310 psig (21.4 barg)	Corrosive Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	636
Silicon Tetrafluoride (SiF_4)	1,000 psig (69.0 barg)	Corrosive Toxic	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	330	642
Sulfur Dioxide (SO_2)	34.4 psig (2.4 barg)	Irritant Toxic	VPC 1000	---	---	660	---
Sulfur Hexafluoride (SF_6)	298 psig (20.5 barg)	Asphyxiant	VPC 1000	VPC 1000	VPC 4000 VPC 5000	590	716
Sulfur Tetrafluoride (SF_4)	140 psig (9.6 barg)	Irritant Toxic	VPC 1000	---	---	330	---
Tetrafluoro-methane (CF_4)	2,000 psig (138.0 barg)	Asphyxiant	---	VPC 7500 VPC 1000	VPC 4000 VPC 5000	580	---
Trichloro-silane ($SiHCl_3$)	---	Corrosive	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	---	636
Triethyl-aluminum ($C_6H_{15}Al$)	---	Flammable Toxic	VPC 7500 VPC 1000	VPC 1000 VPC 2000	VPC 4000 VPC 5000	510	726
Tungsten Hexafluoride (WF_6)	35 psig (2.4 barg)	Corrosive Irritant Toxic	---	VPC 1000NPR	VPC 1000NPR	670	638
Xeon (Xe)	645 psig (44.5 barg)	Asphyxiant	VPC 7500 VPC 1000	---	---	580	718

How to Order



EXAMPLE:

1. VPC1010-S-3P-VF4-10-VF4

   3 port ¼" Female VCR (0-100 psig) VPC1010 with outlet gauge 100 psig.

2. VPC1015-S-4P-NPT4-3015-CGA

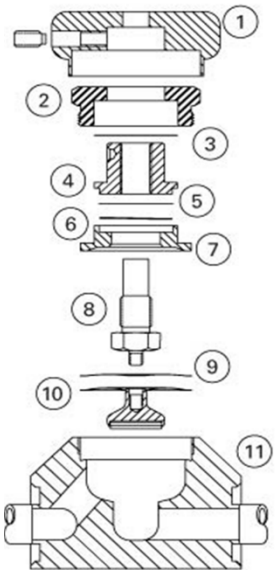
   4 port ¼" NPT VPC1015 (0-150 psig) with CGA inlet fitting and gauge 3,000 psig and outlet gauge 150 psig.

3. VPC1003-S-2P-SW4

   2 port ¼" compression fitting VPC1003 (0-30 psig) without gauge port.

Diaphragm Valve

A broad range of diaphragm valves are available with pressure range up to 4,500 psig with size to 1.0 inch. Available in manual or pneumatic with any kind of end connections.



List of components

1. Knob
2. Nut
3. Washer
4. Bushing
5. Bearing plate
6. Wave spring washer
7. Diaphragm plate
8. Stem
9. Backup Diaphragm
10. Welded diaphragm/seat assembly
11. Body - " VeriClean" 316L stainless

Features

- Standard surface finish of 5 µin Ra (Ra 0.125 µm).
- Internally threadless and springless.
- No change in lever actuating position over the life of the product.
- Fully field serviceable seat can be replaced without special tools.
- A unique patented compression member which loads the seal uniformly.
- Fully functional from vacuum to 4,000 psig (275 bar).
- Minimum particle generation and particle entrapment areas.
- 100% helium leak tested.

Specification

Pressure Range	Vacuum to 4000 psig
Leak rate	Outboard: 1x10-9scc/sec He; Inboard: 2x10-9scc/sec He; Across the Seal: 4x10-9scc/sec He
Temp	-40°C to 65°C, bakeable to 121°C in open position
Flow capacity	¼": 0.30 ; ½" 0.70 (Semi flow Coefficient Test# F-32-0998)
Connection	Any configuration (Tube end, compression or face seal)
Surface Finish	15-10 µin
Actuator Pressure	60-120 psig
Internal Volume	2.2 cc
Material	Body: 316L VAR Seat: PCTFE Diaphragm: Elgiloy or Equivalent Compression Member: 316L Nut and Cap: Stainless Steel Cylinder: Alum Powder Coated

VPC DV1450 was designed specifically for semiconductor process control and have all of the features and benefits of the exceptionally clean with reduced internal volume and body size.

Features

- Standard surface finish of 5 µin Ra (Ra 0.125 µm).
- Internally threadless and springless.
- No change in lever actuating position over the life of the product.
- Fully field serviceable seat can be replaced without special tool
- A unique patented compression member which loads the seal uniformly.
- Fully functional from Vacuum to 4,000 psig (275 bar).
- Minimum particle generation and particle entrapment areas.
- 100% helium leak tested.

Material of Construction

Wetted

Body ....SS 316L VAR
Seat .....PCTFE (formerly Kel-F81®)
Diaphragm.....Elgiloy® or equivalent
Compression Member.....SS 316L

Non-Wetted

Nut.....Stainless Steel
Cap.....Stainless Steel

Operating Conditions

Max. Pressure.....4,000 psig (240 barg)
Min. Pressure ....Vacuum
Temp .....-40°F to 150°F (-40°C to 65°C)
Bake Out .....250°F (121°C) in open position

Functional Performance

Flow Capacity.....C_V=¼"0.30
½"0.70
(SEMI Flow Coefficient Test # F-32-0998)
Design Leak Rate:
Outboard.....1x10^{-9}scc/sec He
Inboard.....2x10^{-9}scc/sec He
Across the Seat.....4x10^{-9}scc/sec He

Standard Connections

Any configuration of face seal male and/or female fittings:

¼" Gland to Gland Length .....2.78"±.02"
(70.6mm±.5mm)

Internal Volume

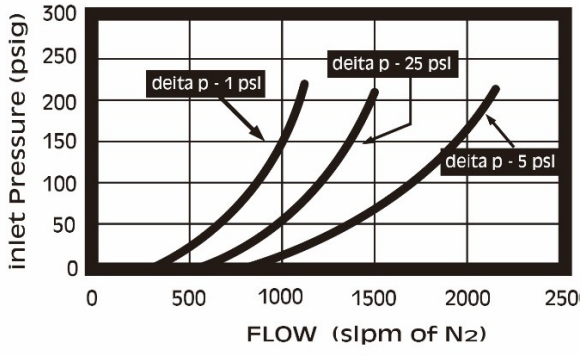
2.2 cc

Surface Finishes

Standard Ra ....15-10 µin
(0.38-0.25 µm)

Approximate Weight

0.57 lbs (0.26 kg)



Air operated diaphragm valve is offered in standard models:

HP NC – High Pressure Normally Close
HP NO – High Pressure Normally Open
LP NC – Low Pressure Normally Close
LP NO – Low Pressure Normally Open

Features

- Standard surface finish of 5 µin Ra (Ra 0.125 µm).
- Internally threadless and springless.
- No change in lever actuating position over the life of the product.
- Fully functional from vacuumto 4,000 psig (275 bar).
- Minimum particle generation and particle entrapment areas.
- 100% helium leak tested.

Material of Construction

Wetted

Body.....SS 316L VAR
Seat.....SS 316L VAR
Diaphragm.....Elgiloy® or Equivalent
Compression Member.....SS316L

Non-Wetted

Nut.....Stainless Steel
Cap.....Stainless Steel
Cylinder.....Aluminum Powder Coated

Operating Conditions

Max. Pressure.....4,000 psig (240barg) Min.
Pressure .....Vacuum
Temp .....-40°F to 150°F (-40°C to 65°C)
Bake Out .....250°F (121°C) in open position

Functional Performance

Flow Capacity .....C_V=0.30
(SEMI Flow Coefficient Test # F-32-0998)
Design Leak Rate:
Outboard.....$1x10^{-9}$scc/sec He
Inboard.....$2x10^{-9}$scc/sec He
Across the Seat.....$4x10^{-9}$scc/sec He
Actuator Pressure ....60~120 psig (4~8.3 barg)

Standard Connections

¼" tube stubs inlet and outlet:
End to End Length .....1.75"±.02" (44.5mm±.5mm) Fixed
Male Swagelok Ends.....1..87"±.02" (47.5mm±.5mm) Fixed
Male FS Ends .....2.35"±.02" (59.7mm±.5mm)

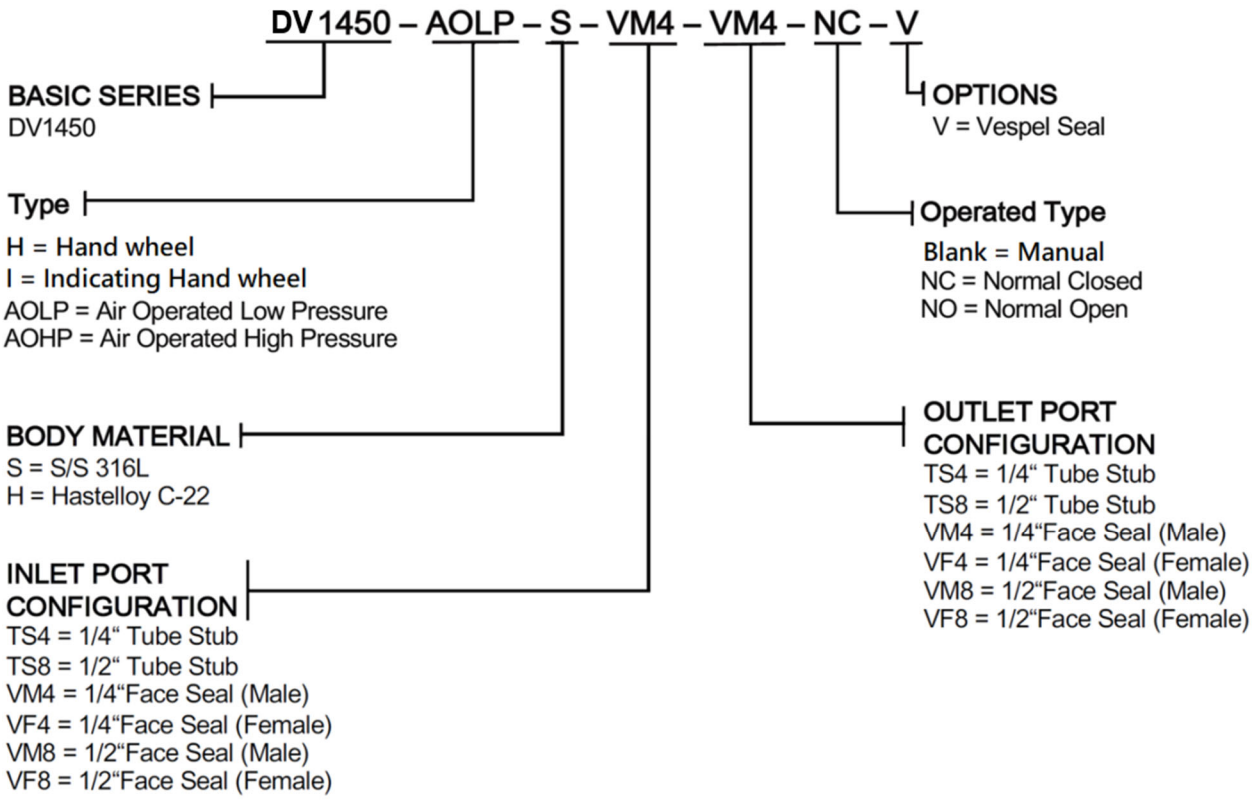
Surface Finishes

Standard Ra.....EP 5 µin (0.125 µm)

Approximate Weight

0.95 lbs (0.43kg)

How to Order



EXAMPLE:

1. DV 1450-H-S-VM4-VM4-V

   ¼” VCR (Male) DV 1450 with handwheel and vespel seal.

2. DV 1450-I-H-VF8-VF8

   ½” VCR (Female) DV 1450 in Hastelloy C-22 with indicating handwheel.

3. DV 1450-H-S-TS4-TS4

   ¼” Tub stub DV 1450 with handwheel.

4. DV1450-AOLP-S-VM4-VM4-NC-V

   ¼” VCR (Male) DV 1450 (air operated low pressure) in normal closed with vespel seal.

5. DV1450-AOHP-S-TS8-TS8-NO

   ½” Tube stub DV 1450 (air operated high pressure) in normal open.

6. DV1450-AOLP-H-VF4-VF4-NO-V

   ¼” VCR (Female) DV 1450 (air operated low pressure) in Hastelloy C-22 with normal open and vespel seal.

VPCG Series pressure gauges are designed and manufactured for ultra high purity gas distribution equipment used in Semiconductor manufacturing. These 2 inch, all stainless steel gauges are clean room produced, nitrogen purged, and double bagged in 3 mil nylon bag and 6 mil poly bag.

These instruments are compatible with many toxic and corrosive gases. Welded face seal connections provide a threadless pressure seal and virtually eliminate a major source of contamination.

Features

- Standard surface finish of 10µin Ra (Ra 0.125µm).
- Cleaning for UHP gas applications exceeding Grade A ANSB40.1 specifications.
- Helium leak tested to confirm leakage rates of less than $1x10^{-9}$scc/sec.
- Large, easy-to-read dial graduations.
- Assembled and packaged in Class 100 clean room.
- Handles wide variety of exotic gases.
- Low mount or center back connections

Material of Construction

Wetted

Body .....SS 316L VAR
Bourdon Tube .....SS 316L VAR
Case.....SS 304 electropolished
Cap.....Safety plastic

Non-Wetted

Nut.....Stainless Steel
Cap.....Stainless Steel

Operating Conditions

Size..... ...2 Inch (50mm)
Accuracy.....2/1/2% of span (ASME B40.100 Grade A)
Max. Pressure range.....4,000psi

Functional Performance

Design Leak Rate:
Inboard.....$1x10^{-9}$scc/sec He
Pressure range.....-30-0-30 psig
-30-0-160 psig
0-300 psig
0-1000 psig
0-3000 psig
0-4000 psig

Standard Connections

Connection Type and Position:
¼" Face Seal male or female,
Low Mount and Center Back Mount

Surface Finishes

Standard Ra.....EP 5 µin (0.125 µm)
Cleanliness: Special cleaning according to SEMI spec.

Approximate Weight

3.35oz (95g)

VPC-PT Series are pressure transducers used for stable, accurate, and reliable pressure monitoring in ultra-high purity applications.

The ultra stable, micro-machined silicon strain gauges are matched and fused, at high temperature, to the metal diaphragm, which is guarded by stress relieving features. The "drift" (lack of zero stability) commonly associated with competitive products is essentially eliminated. Consequently, the requirements for zero adjustment and frequent re-adjustment to compensate for "drift" are reduced by an order of magnitude.

Features

- Ultra stable glass bonded sensing elements
- Electropolished wetted material for UH applications
- 4 to 20 mA, 0-5 VDC and 0-10VDC Outputs available
- Digital signal processing, high performance digital electronics
- CE compliant
- ATEX compliant
- RoHS compliant
- FM approved
- Nema 4X
- 2 year warranty

Material of Construction

Wetted

Body.....SS 316L VAR

Bourdon Tube.....SS 316L VAR

Case.....SS 304 electropolished

Non-Wetted

Nut.....Stainless Steel

Cap.....Stainless Steel

Operating Conditions

Ingress Protection .....NEMA4/IP67 (side access zero-point adjustment)

Accuracy.....<0.15%RSS (<0.3%FS,IEC61298-2)

Max. Pressure range 3,000psi

Functional Performance

Design Leak Rate:

Inboard.....1x10^{-9}scc/sec He

Pressure range.....-14.7~235.3 psig

-14.7~2985.3 psig

Standard Connections

Connection Type and Position:

¼" Face Seal male or female,

Low Mount and Center Back Mount

Surface Finishes

Standard Ra.....EP 5 µin (0.125 µm)

Cleanliness: Special cleaning according to SEMI spec.

Approximate Weight

3.84oz (109g)

VPCF800 Series filters are specifically designed for filtration of critical semiconductor gases where flow rates of more than 20 liters per minute are required.

The filters use a Teflon membrane in a small pleated cartridge form to provide 0.003 micron absolute filtration. The Teflon membrane cartridge is encapsulated in a 316L stainless steel housing that is electro- polished and totally welded. The final assembly is purged at a high flow rate with filtered nitrogen for initial cleanliness.

Features

- 99.9999999% Efficient @0.003 Microns Teflon (PTFE) Membrane.
- 0.5 square foot Effective Filtration Area.
- 316L, 5Ra finish, electro polished stainless steel housing 750 psig operation pressure at 284°F.
- 100% Helium leak tested to 1 X 10^{-9} cc/sec.
- Available with Swagelok, VCR and NPT fittings Interchangeable with all Pall and Millipore Filters
- Compatible with all Semiconductor Grade Gases

Material of Construction

Wetted
Body.....SS 316L VAR
Poppet .....SS 316L VAR
Nut.....Stainless Steel
Non-Wetted
Spring ..... Elgiloy® or equivalent
Seal .....PTFE or PCTFE

Operating Conditions

Seal Temperature Range
-40°F to 240°F(-40°C to 116°C) .....PTFE
-35°F to 550°F(-38°C to 287°C) .....PCTFE
Removal Rating..... ≥ 0.003 µm

Maximum Operating Pressure: 750 psig
(284°F/52 bar @ 140°C)
Forward Differential Pressure: 100 psig
(100°F/7 bar @ 38°C)
Flow Capacity.....0-600 slpm
Max. Pressure.....1000 psi
(68 Bar)

Functional Performance

Design Leak Rate:
Inboard.....1x10^{-9}scc/sec He

Standard Connections

Connection Type:
¼" - ½" Face Seal male or female,
¼" - ½" Tube Stub,

Surface Finishes

Standard Ra..... EP 5µin (0.125µm)
Option Ra..... BA 10µin (0.25µm).

Approximate Weight

10.95oz (310g)
Packaging: Outer bag aluminized mylar and Inner bag polyethylene.
Cleanliness: Special cleaning according to SEMI spec.

VPCF3000XL Series filters are specifically designed for filtration of critical semiconductor gases and small flow point-of-use gas filtration applications.

The filters use a Teflon membrane form to provide 0.003 micron absolute filtration. The Teflon membrane cartridge is encapsulated in a 316L stainless steel housing that is electro- polished and totally welded. The final assembly is purged at a high flow rate with filtered nitrogen for initial cleanliness.

Features

- 316L stainless steel electropolished housing Ra 5uIn surface finish.
- All fluoropolymer element.
- Wide range of chemical compatibility.
- High temperature and pressure capabilities.
- Wide variety of fitting options.
- Compact size (< 1"/25 mm dia.) for ease of installation.
- 100% integrity tested.
- Cleanroom manufactured and packaged.
- 100% helium leak tested.

Material of Construction

Wetted

Body·····SS 316L VAR
Poppet .....·····SS 316L VAR
Nut··· ··· ··· ··· ··· ··· ··· ··· ···...···Stainless Steel

Non-Wetted

Spring ····· Elgiloy® or equivalent
Seal ·····..PTFE or PCTFE

Operating Conditions

Seal Temperature Range ···.....···
-40°F to 240°F(-40°C to 116°C) ···.....PTFE
-35°F to 550°F(-38°C to 287°C) ···...PCTFE
Removal Rating····· ≥ 0.003 μm

Maximum Operating Pressure: **300**0 psig (250° F/207 bar @120° C)
Forward Differential Pressure: 80 psig (250° F/5.5 bar @120° C)
Flow Capacity.....0-120 slpm
Max. Pressure·····.·····..3000psi (68 Bar)

Functional Performance

Design Leak Rate:
Inboard.....1x10^{-9}scc/sec He

Standard Connections

Connection Type :
¼" Face Seal male or female,
¼" Tube Stub,

Surface Finishes

Standard Ra..... EP 5µin (0.125µm)
Option Ra..... BA 10µin (0.25µm)

Approximate Weight

8.1oz (227.2g)
Packaging: Outer bag aluminized mylar and Inner bag polyethylene.
Cleanliness: Special cleaning according to SEMI spec.

HP (HIGH PURITY) Valves

Ball Valves

For repeatable, leak-tight shutoff, and low cost of ownership

- Working pressure up to 6000 psig
- Working temperature: -65°F to 450°F
- Low operating torque
- Handle as indicator of flow direction and positive handle stop
- Electric and pneumatic actuator available
- Bidirectional flow for straight valves
- The inlet of 3-way valves and angle pattern valves can only be the bottom port
- Other types include full-flow, three piece or trunnion styles available.

Check Valves

Allow to flow in one direction only, to prevent the back flow

V/CASeries • Resilient O-ring seat design for leak free sealing • Working pressure up to: 3000 psig • Working temperature: -10°F to 375°F • Cracking pressure: 1/3 to 25 psig (CV), 3 to 600 psig (CA) • CV: Non-adjustable cracking pressure; CA: Adjustable cracking pressure.	CH Series • Seat ring continuously cleaned by media, avoiding • secondary pollution • Working pressure up to: 6000 psig • Working temperature: -10°F to 400°F • Cracking pressure: 1/3 to 25 psig • Non-adjustable cracking pressure, mountable in any directions • ECE R110 type approved valves for use in CNG/NGV application available
CO/COA Series • Compact design, one-piece body • Working pressure up to: 3000 psig • Working temperature: -10 °F to 375°F • Cracking pressure: 1/3 to 25 psig (CO), 3 to 600 psig (COA) • Variety of end connections and materials available • Non-adjustable cracking pressure, mountable in any directions	CL Series • Working pressure up to: 6000 psig • Working temperature: -65 °F to 900°F • Rugged, all-stainless-steel construction • Union bonnet design, horizontal installation with bonnet nut on top • Reverse flow coefficient less than 0.1% of forward flow coefficient

Metering Valves

To make fine adjustments to control the system flow

- Working pressure up to: 2000 psig
- Working temperature: -10°F to 400°F
- Orifice size: 0.032"
- Max. flow coefficient (Cv): 0.004
- Stem taper: 1°
- Turns to open: 9 to12
- Shutoff service: not available
- Bottom mounting available
- Variety of end connections
- Panel mountable
- Flow pattern: straight, angle, cross and double
- Handle type: knurled, vernier and slotted

Needle Valve

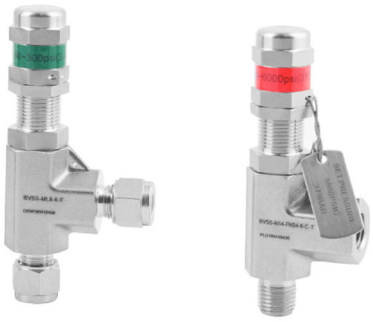
Slow opening to throttle or regulate the flow

Working pressure	
SST: 6000 psig	Alloy 400: 5000 psig
C276: 6000 psig	Titanium: 3500 psig
Brass: 3000 psig	
Working Temperature	
PTEF: -65°F to 450°F	Graphite: -65°F to 1200°F
Peek: -65°F to 450°F	

- Cold drawn bar as body
- Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- Upper stem thread lubricant isolated from system media
- Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- Safety back seating seal in fully open position
- Panel mounting available
- Steady and durable fastening of the handle by double lock-pins

Relief Valve

Provide overpressure protection by diverting the flow



Relief valves are proportional relief valves that open gradually as the pressure increases.

	RV series	RL series	RM series
Set pressure	50 to 6000 psig	10 to 225 psig	50 to 1500 psig
Maximum outlet pressure	1500 psig	225 psig	1500 psig
Orifice size	0.14”	0.19”	0.25”
Back pressure	N/A		Pre-set pressure = desired pressure – 0.8 x back pressure
Working temperature	-40°F to 300°F		

Filter

To trap fine particle contaminants

- Various filter styles, including tee, inline, compact and high capacity.
- Working pressure up to 6000 psig
- Working temperature -20°F to 900°F
- Sintered and strainer filter elements available
- Element nominal pore size from 0.5 µm to 15 µm
- Various end connections available

HP Fittings

Compression fittings

Features

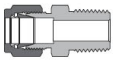
- Sizes range from 1/16" to 2" and 2 mm to 50 mm
- Diverse materials and configurations are available
- Radius junction design for elbows provides smooth flow path
- Every fitting is marked with size, material and heat number
- Fittings are easy to disconnect and retighten
- 1/8" to 5/8", 3 mm to 16 mm fittings available with EC-79 certification
- Precision machined components ensure perfect deformation of the ferrules and tubing
- Hardened threads with smooth surface finish avoid galling and help to extend the fitting service life
- Female nut threads are silver-plated to reduce the friction against the body threads

Technical data

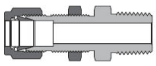
Materials

Fittings: 316, 316L, 304, 321, 316Ti, 6Mo, 904L, Brass, Alloy 400, Titanium, Alloy 2507 and Alloy 625, 6-Molybedenum, Alloy 825.

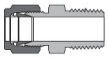
Male Connectors - CM



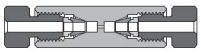
Bulkhead Male Connectors - BCM



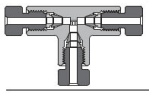
Thermocouple Connectors - TCM



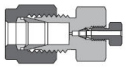
Chromatograph Fittings - U



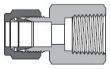
Chromatograph Fittings - TTT



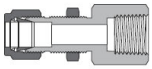
Column End Fittings - U



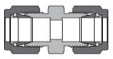
Female Connectors - CF



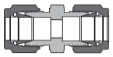
Bulkhead Female Connectors - BCF



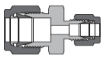
Unions - U



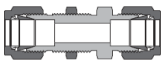
Conversion Unions - U



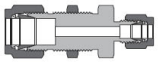
Reducing Unions - U



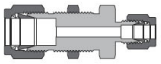
Bulkhead Unions - BU



Bulkhead Reducing Unions - BU



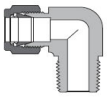
Bulkhead Conversion Unions - BU



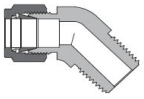
Weld Bulkhead Unions - BU

Bulkhead Locknuts - BN

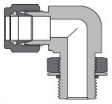
Male Elbows - LM



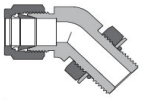
45° Male Elbows - VM



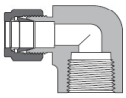
Positionable Male Elbows - LP



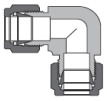
45° Positionable Male Elbows - VP



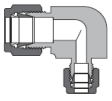
Female Elbows - LF



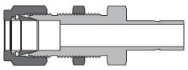
Union Elbows - LU



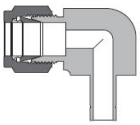
Union Reducing Elbows - LU



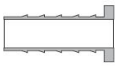
Bulkhead Reducers - BR



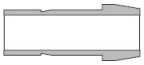
Reducer Elbows - LR



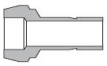
Insert for Soft Plastic Tubings - IN



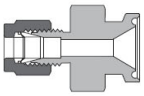
Port Connectors - P



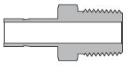
Reducing Port Connectors - P



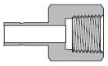
Sanitary Flange Fittings - SFF



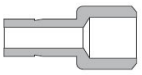
Male Adapters - AM



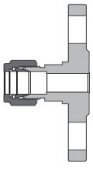
Female Adapters - AF



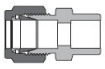
Weld Adapters - AW



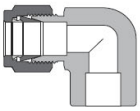
Flange Adapters - FA



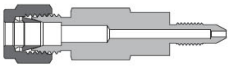
Weld Connectors - CW



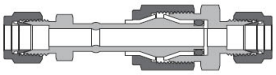
Weld Elbows - LW



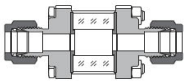
Calibration Fittings - FC



Dielectric Fittings - DF



Visual Tube Fittings - SGF



RS, RSD Gaskets - RS, RSD

RP Gaskets - RP

RG Gaskets - RG

RJ Gaskets - RJ

O-rings - VI, BN

Metal Face Seal Fittings

Features

- **Metal-to-metal seal** to provide perfect leak-tight service for working conditions from critical vacuum to high pressure
- Precision manufactured gasket to ensure best performance
- Test port at nut for easy leak testing
- Silver-plated female threads
- Standard surface roughness finished to an average of Ra 10 µin. or electropolished to Ra 5 µin. optional
- All seal faces and male threads protected with plastic caps
- Sizes range from 1/16" to 1" and 6 mm to 18 mm
- Every gland and body marked with size, material and heat number

Materials	Fittings: 316 SS, 316L SS, 316 SS VAR, 316 SS VAR ultra-low Mn Gasket: 316L SS, Copper, Nickel
Temperature	Fitting is rated 1000ºF, Gasket: Stainless at 1000ºF, Copper at 400ºF, Nickel at 600ºF
Testing	Rated to a maximum helium leak rate of 4×10 std cm /s.

O-ring Face Seal Fittings

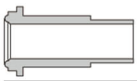
Features

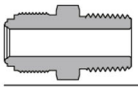
- **O-ring seal** to provide perfect leak-tight service for working conditions from critical vacuum to high pressure
- Smooth finish on gland face to ensure positive seal
- Easy installation and maintenance
- Silver-plated female threads
- Sizes range from 1/8" to 1"
- Every gland and body marked with size, material and heat number

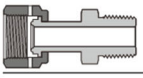
	Fittings: SS316 SS or 316L SS Gasket: FKM, FFKM, Buna, EPDM, PTFE
Temperature	FKM: -10ºF - 400ºF ; FFKM: -22ºF - 500ºF; Buna: -22ºF - 250ºF ; EPDM-10ºF - 400ºF ; PTFE: -50ºF - 300ºF
Testing	Rated to a maximum helium leak rate of 4×10 std cm /s.

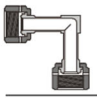
Metal Gasket Face Seal Fittings

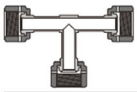
FR Series


Glands - G


Bodies - CM, CMB, CF, U, UB, BU, BW, RU, RA, RB, LM, LU, TTT, C


Welded Glands - WG

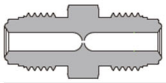

Female Elbows - LWG

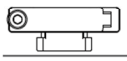

Female Tees - TWG


Nuts - N, MN, BC

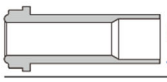

Plugs - PG


Caps - CP


Flow Restrictors - R

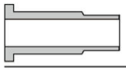

Locking Device

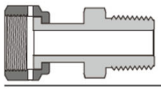
Gaskets - GT


High-Flow Connections - "H" Type FR Fittings

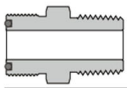
O-Ring Face Seal Fittings

FO Series


Glands - G


Welded Glands - WG


Nuts - N


Bodies - CM, CF, U, UB, BY, BU, CW, LM, LU, LP, LU, TTT


O-Rings


Gaskets

Weld fitting

Micro Weld fitting	Tube butt welding fitting	Tubular Fitting
Features • Compact design • Applicable to miniaturized tubing system **Surface Finish** M series: Ra 10 µin or EP Ra 5 µin. (0.13 µm) optional. **Material** 316, 316L, 316L VAR, 316L VAR ultra-low Mn **Size** 1/8" to /12" 6mm to 12mm	**Features** • Extended Tube • Machined from forging blanks except for straight configurations. **Surface Finish** L series: Ra 10 µin or EP Ra 5 µin. (0.13 µm) optional **Material** 316, 316L **Size** ¼" to 1" 6mm to 18mm	**Features** Available in a variety of configurations. **Surface Finish** T series: Ra 15 µin or EP Ra 5 µin optional **Material** 316L **Size** ¼" to 2"

Tubing

Instrumentation tubing	High Purity Tubing
Seamless tube used with compression fitting and CDA application. Pickled, Bright annealed, OD machined finish Material: 304/304L, 316/316L, enhanced 316/316L Size: 1/16" to ¾"", and 2mm to 20 mm Working temperature: -325ºF to 1000ºF	Weld tube for high purity fluid, such as Semi applications. ID cold worked for RA ≤20 µin Material: 316L with ASTM A269/A632 spec Size: ¼" 2.5" Working temperature: -325ºF to 1000ºF

Gasline

Metallic hydroformed gasline yield a very clean product.

Standard cleaning procedure includes degreasing and rinse. Gaslines are 100% tested and leak checked.

Optional cleaning methods are

- Oxygen clean
- Ultrasonic Clean

We offer two types of gas lines; "General Use" and "Stay-Put".

General Use is for industrial application of gas & liquid lines with high temperature, corrosive media and harsh environment

Stay-Put can fit into a tight space without creating stress

	
General use	Stay-put
• Braided, double braided or unbraded corrugated tube assembly • Core tube is made of 316L stainless steel • Braid is made of 304 stainless steel • Tube ID from 1/4" to 2" • Max. working pressure 2,700 psi (186 bar) • Min. static bend radius for braided hose 1.0" (25 mm) • Min. dynamic bend radius for braided hose 4.5” (114 mm) • Full range of end connections	• Formable and fit into a space without stress • Braided or unbraided • Core tube is made of SS 316L. Braid is made of SS 304 • Tube ID 1/4”, 3/8”, 1/2" • Max. working pressure 900 psi • Min. static bend radius for braided hose 1.0"

Hose

	PTFE Hose	Push-on Hose	Thermoplastic Hose
Material	Core tube: PTFE Braided: SS304	Core tube: rubber Reinforcement: fiber	Core tube: nylon Cover: Polyurethane Reinforcement: fiber
Size	1/8" to 1"	¼” to ¾”	3/16” to 1”
Working pressure	up to: 3000 psig	Up to 300 psig	Up to 5000 psig
Working temperature	-65°F to 400°F	-40°F to 200°F	-40°F to 200°F
Features	Good for Sanitary application Lightweight and nonstick Low absorption rate	Good for general purpose Economical Flexible	Good for Hydraulic applications Withstand high pressure

Connectors

We offer various connector, such as KF flange to VCR adapter to connection vacuum chamber to the gas line, ultra torr adapter to connect with the vacuum tube, and cylinder connection adapter! Custom adapters are avaiable upon request

Flange to fitting

ultra torr connector

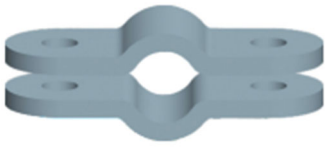
Cylinder connector

Quick-connect

Hose connector

Clamps

We offer various clamps for your installation needs, such as the Vacuum wingnut clamp, sanitary high pressure clamp, Tube clamp, and hose clamp.



Tube clamp

Wingnut clamp

High pressure clamp

Hose clamp

Cleaning Standard

Item	AP	BA	EP
Particle	0.3μm ≦ 10 pcs	0.3μm ≦ 10 pcs	≦ 100A : 0.1μm≦1 pcs
Oil Content	< 0.1mg/ft^2	≦200A : < 0.1mg/ft^2	≦100A : < 0.01mg/ft^2
Eluant Lon Check(Liquie Resistivity Measurement)		> 0.5MΩ-cm at 25^{0}C	> 0.5MΩ-cm at 25^{0}C
DI WATER		18MΩ	18MΩ

Packaging Standard

Item	Spec	BAS	EP	VIM/VAR
N_2 purge	99.9999% purity	v	v	v
Flim	Polyamide nylon patches, min: 0.05mm	v	v	v
Cap	Polyvinyl chloride, min: 0.8mm	v	v	v
Inner bag	Polyethylene, min: 0.10mm	v	v	v
Outer bag	Polyethylene, min: 0.12mm	v	v	v

Pipe fittings

Face Seal & Micro Fitting

Regulator & Diaphragm valve

High Purity valve

Filter