

VIGOUR

we offer solutions regarding your ideas!

ULTRA HIGH PURITY GAS SYSTEM

**Gas
Control
Solutions**

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Single Stage Pressure Regulators

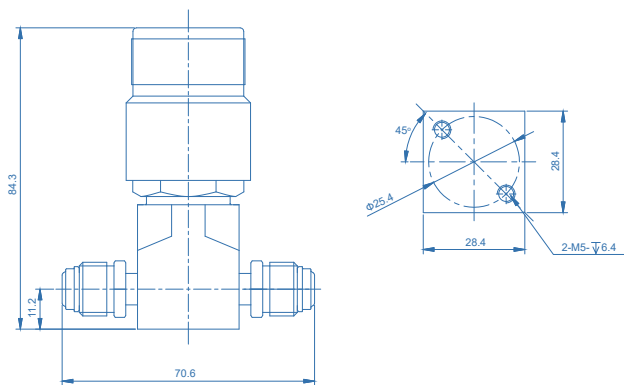
VSR-50UB Series

Product Feature

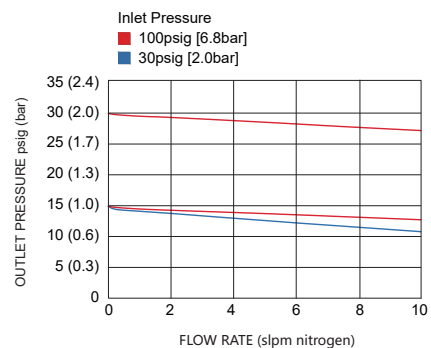
- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 15 slpm (standard), to 30 slpm (optional)
- 100% helium-leak-tested



Dimensions (mm)

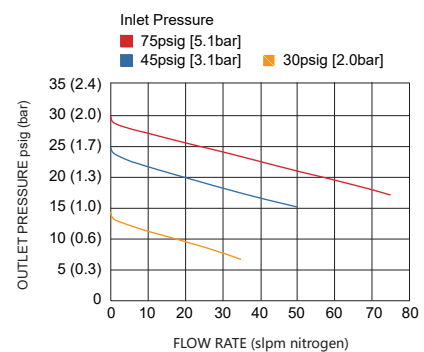


Flowchart



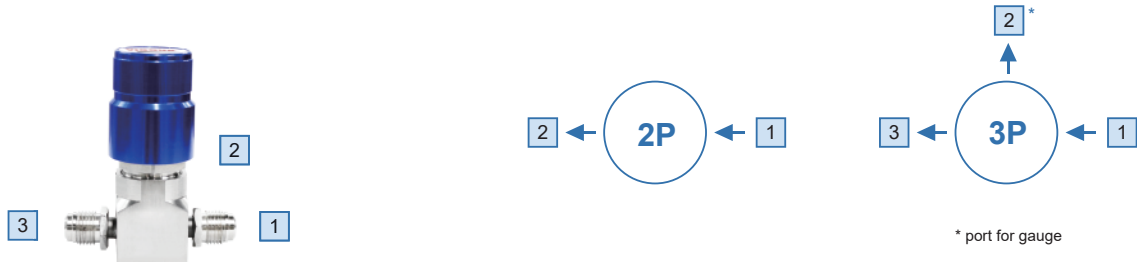
Technical Data

Type:	single-stage
Inlet pressure P ₁ :	Vacuum to 150 psig
Outlet pressure P ₂ :	10/30/60/100 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" VFS fitting and tube weld
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.06 (Cv=0.1 optional)
Supply pressure effect:	0.2 psig rise in delivery pressure per 20 psig source pressure drop @Cv=0.06 0.4 psig rise in delivery pressure per 20 psig source pressure drop @Cv=0.1
Weight:	approx. 1.25kg



Single Stage Pressure Regulators VSR-50UB Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male

TW4: 1/4" tube weld
P: gauge (1/4" VFS fitting)

* Other connection standard, consult factory

Port Selection

VSR - 50UBPS - 10 - 7 - 3P - 1 - 2 - 3 - R25 - HF - VS

Installation

None: bottom mount
P: panel mount *

* Panel hole $\Phi 36\text{mm}$

Materials

S: 316L
SHP: 316L body and nozzle
Hastelloy® C22 poppet

*All options diaphragm material is Hastelloy® C276

Inlet Pressure

10: 150 psig

Outlet Pressure

V0.7: Vac to 10 psig*
V2: Vac to 30 psig*
V4: Vac to 60 psig*
V7: Vac to 100 psig*
0.7: to 10 psig *
2: to 30 psig
4: to 60 psig
7: to 100 psig

* With the V option, the negative pressure can not be adjusted, only the pressure gauge shows the negative pressure.

Valve seat Option

None: PCTFE
VS: Vespel®

Cv Option

None: Cv=0.06
HF: Cv=0.1

Surface Finish

None: 10 $\mu\text{in. Ra}$
R25: 25 $\mu\text{in. Ra}$

Port Config

2P: 2 ports
3P: 3 ports

Ordering Example

VSR - 50UBS - 10 - 7 - FV4 - P - FV4
1 - 2 - 3

Single Stage Pressure Regulators

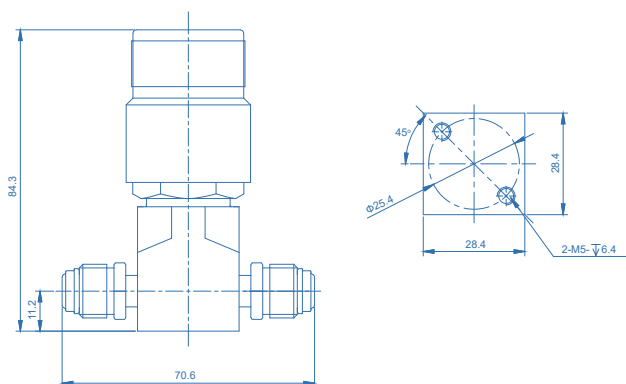
VSR-50UC Series

Product Feature

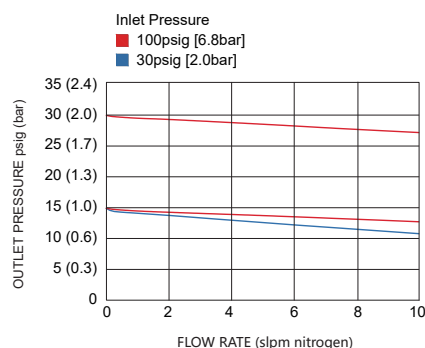
- Single-stage pressure regulator
- 15µin. Ra max, 10µin Ra average surface finish
(10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 15 slpm (standard), to 30 slpm (optional)
- 100% helium-leak-tested



Dimensions (mm)



Flowchart



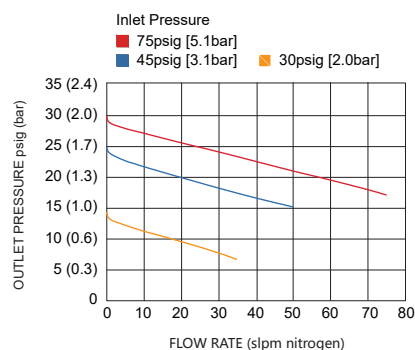
Technical Data

Type:	single-stage
Inlet pressure P ₁ :	Vacuum to 150 psig
Outlet pressure P ₂ :	10/30/60/100 psig
Surface finish:	15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)

Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" VFS fitting and tube weld
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He

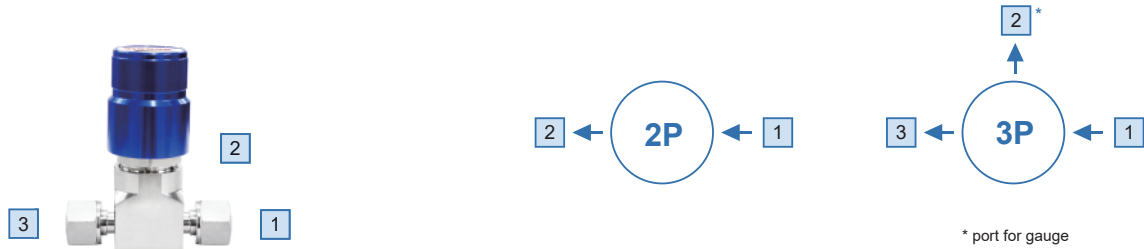
Flow capacity:	Cv=0.06 (Cv=0.1 optional)
Supply pressure effect:	0.2 psig rise in delivery pressure per 20 psig source pressure drop @Cv=0.06 0.4 psig rise in delivery pressure per 20 psig source pressure drop @Cv=0.1

Weight: approx. 1.25kg



Single Stage Pressure Regulators VSR-50UC Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male

TW4: 1/4" tube weld
P: gauge (1/4" VFS fitting)

* Other connection standard, consult factory

Port Selection

VSR - 50UCPS - 10 - 7 - 3P - 1 - 2 - 3 - R5-HF-VS

Installation

None: bottom mount
P: panel mount *

* Panel hole $\Phi 36\text{mm}$

Materials

S: 316L secondary remelt
SHP: 316L body and nozzle
Hastelloy® C22 poppet

*All options diaphragm material is Hastelloy® C276

Inlet Pressure

10: 150 psig

Outlet Pressure

V0.7: Vac to 10 psig*
V2: Vac to 30 psig*
V4: Vac to 60 psig*
V7: Vac to 100 psig*
0.7: to 10 psig *
2: to 30 psig
4: to 60 psig
7: to 100 psig

* With the V option, the negative pressure can not be adjusted, only the pressure gauge shows the negative pressure.

Valve seat Option

None: PCTFE
VS: Vespel®

Cv Option

None: Cv=0.06
HF: Cv=0.1

Surface Finish

None: 15 $\mu\text{in. Ra max}$
R10: 10 $\mu\text{in. Ra max}$
R7: 7 $\mu\text{in. Ra max}$
R5: 5 $\mu\text{in. Ra max}$

Port Config

2P: 2 ports
3P: 3 ports

Ordering Example

VSR - 50UCS - 10 - 7 - FV4 - P - FV4
1 - 2 - 3

Single Stage Pressure Regulators

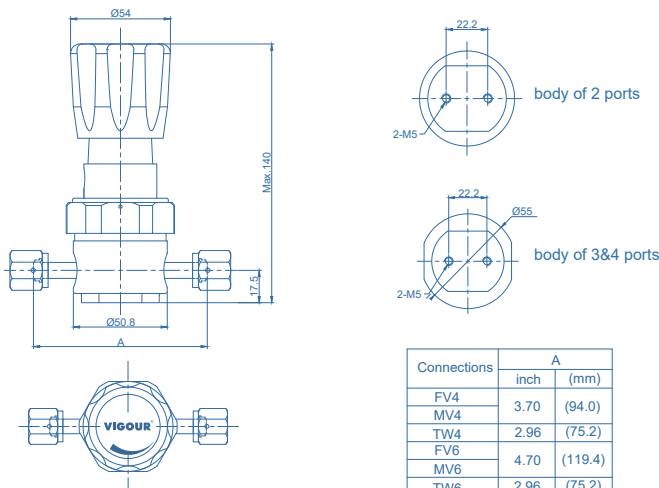
VSR-100UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested



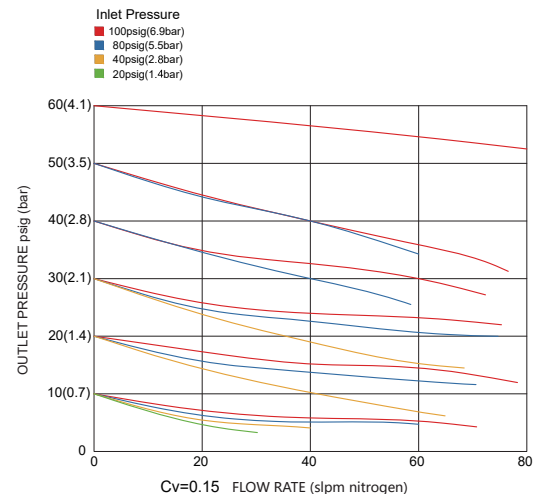
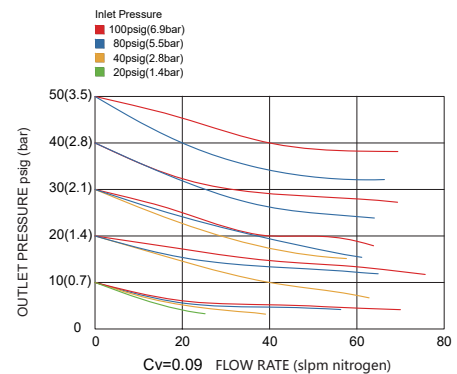
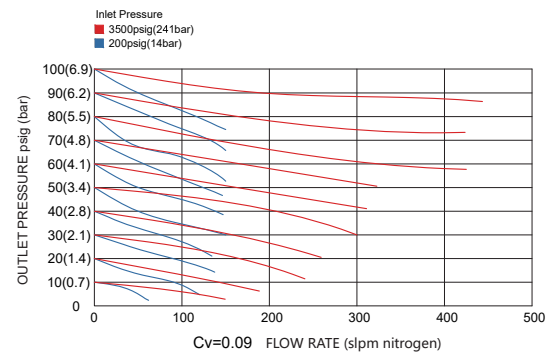
Dimensions (mm)



Technical Data

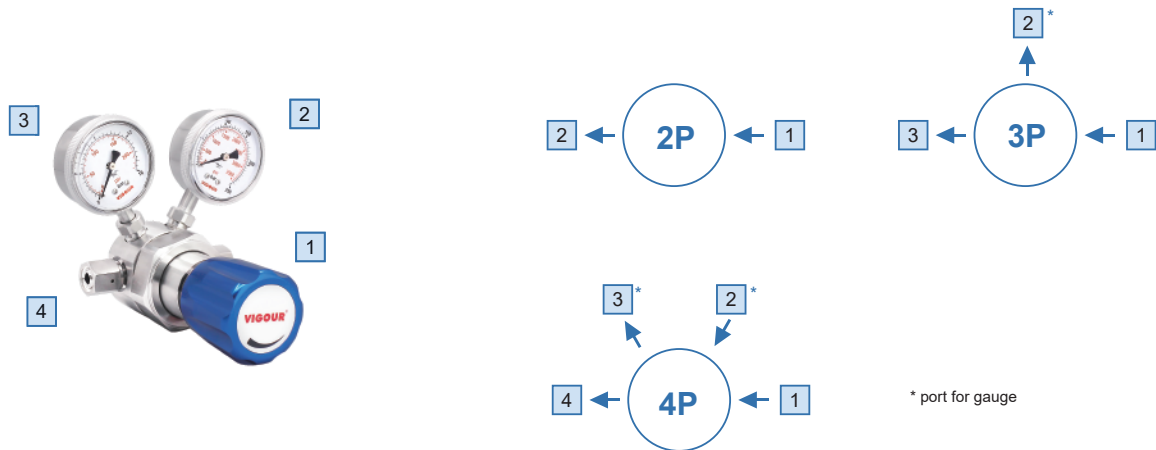
Type:	single-stage
Inlet pressure P ₁ :	max. 3500 psig
Outlet pressure P ₂ :	10/30/60/100/150 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespe [®] optional)
Diaphragm:	Hastelloy [®] C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.09 (Cv=0.15 optional)
Supply pressure effect:	0.35 psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.09 0.5psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.15
Weight:	approx. 1.35kg

Flowchart



Single Stage Pressure Regulators VSR-100UB Series

Ordering Information



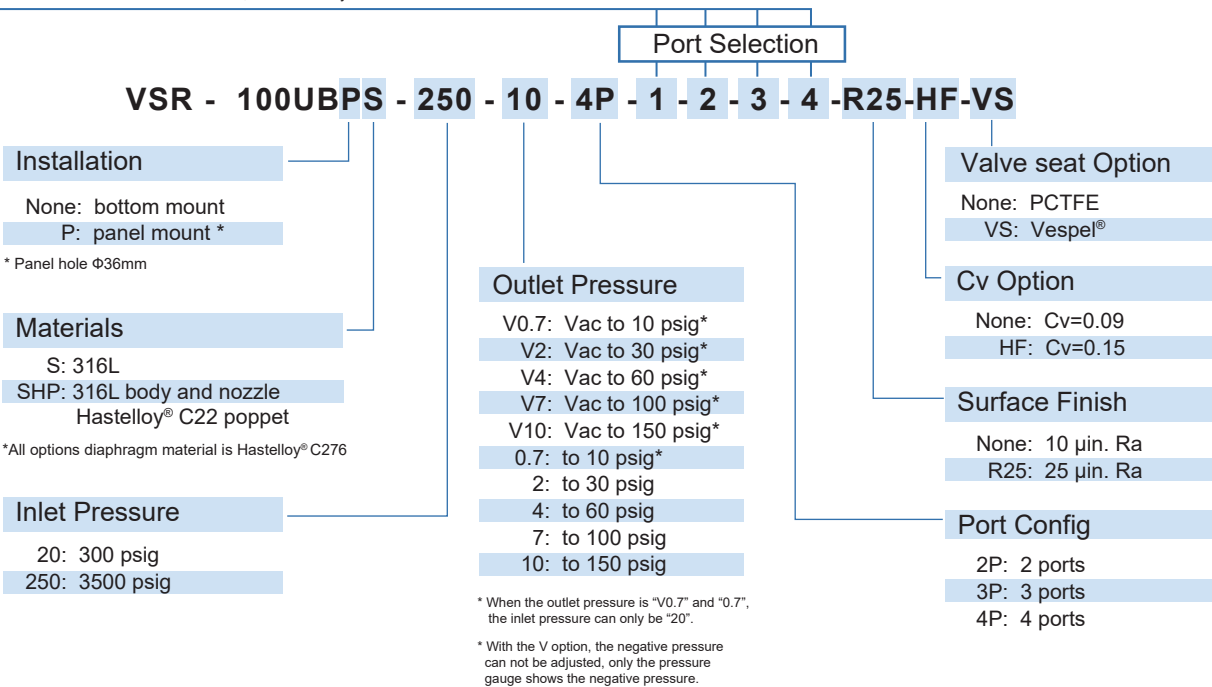
Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)
TW4: 1/4" tube weld
TW6: 3/8" tube weld

P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 100UBS - 250 - 10 - FV4 - P - P - FV4

1 - 2 - 3 - 4

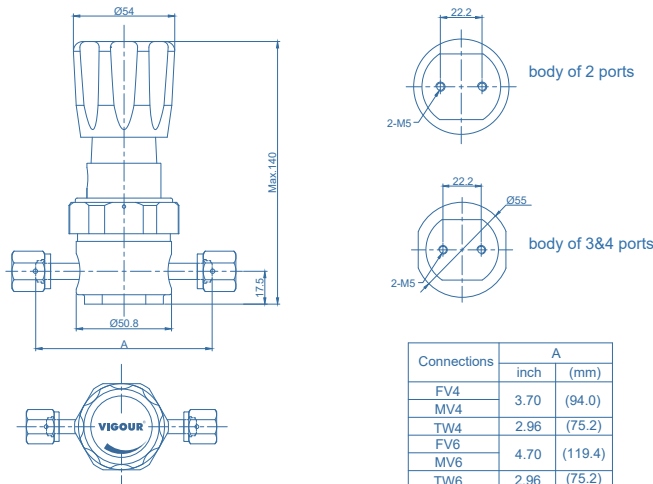
Single Stage Pressure Regulators

VSR-100UC Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested

Dimensions (mm)

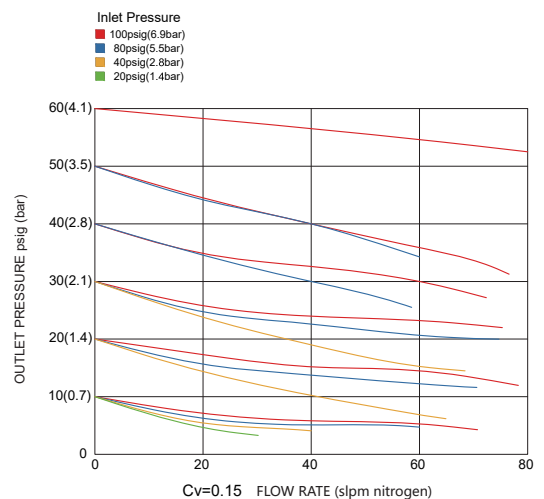
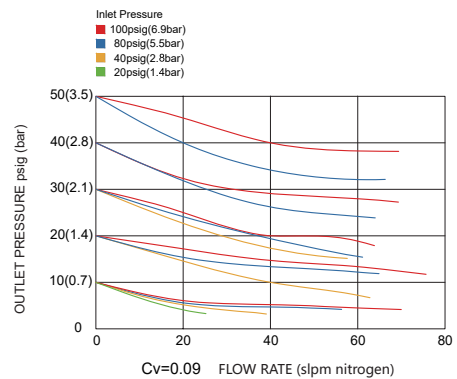
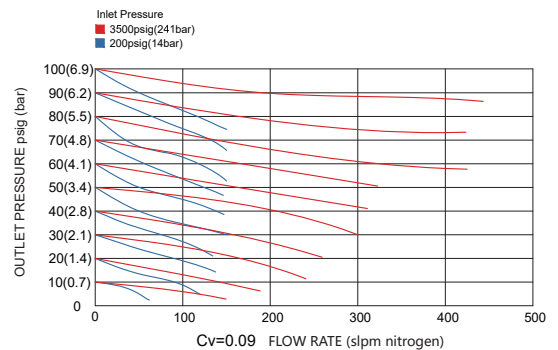


Technical Data

Type:	single-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	10/30/60/100/150 psig
Surface finish:	15µin. Ra max/10µin. Ra avg (10µin. Ra max, 7µin. Ra max, 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.09 (Cv=0.15 optional)
Supply pressure effect:	0.35 psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.09 0.5psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.15
Weight:	approx. 1.35kg

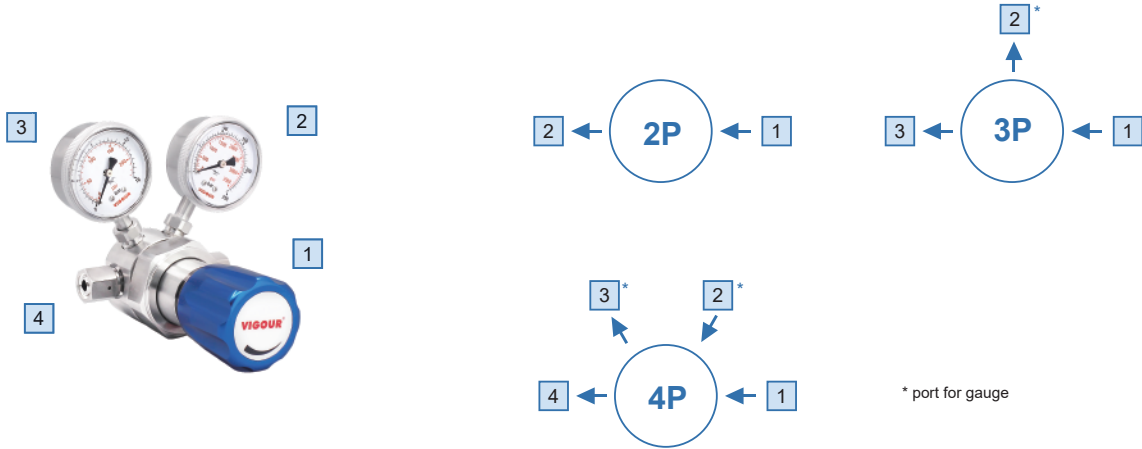


Flowchart



Single Stage Pressure Regulators VSR-100UC Series

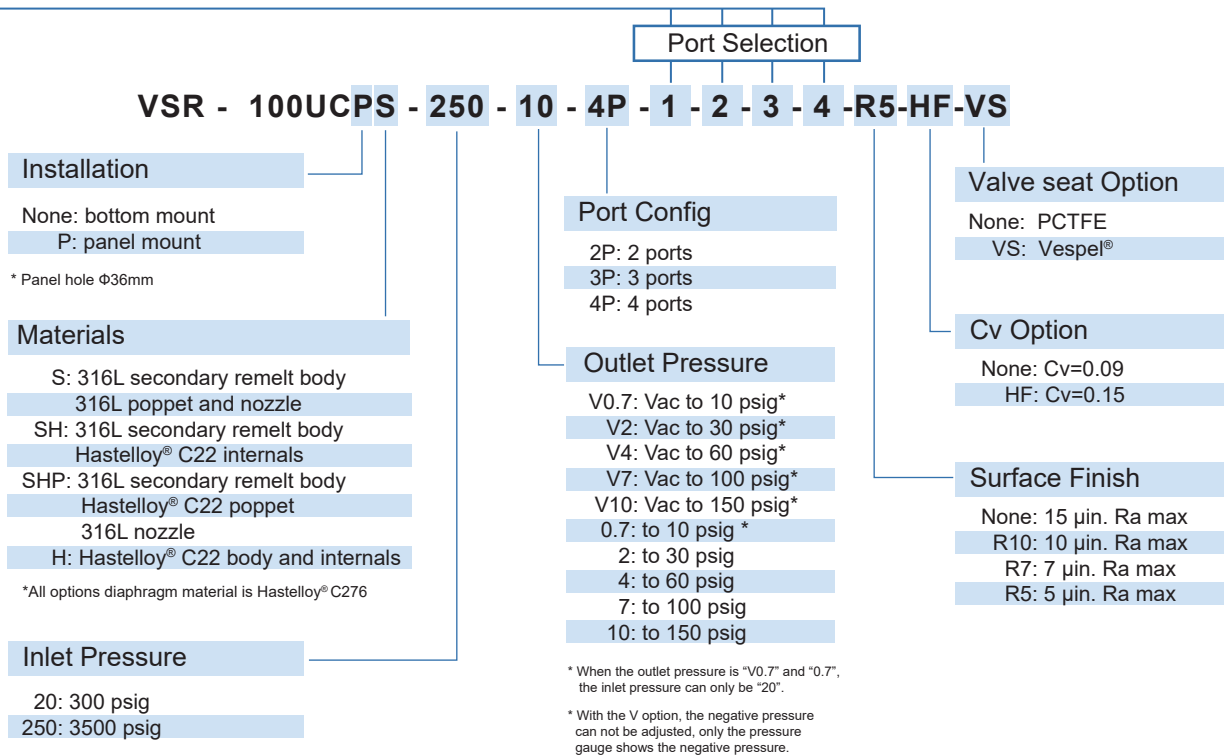
Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female	IFV4: 1/4" (gauge female threaded connection machined on the body)	P: gauge (1/4" VFS fitting)
MV4: 1/4" VFS male		IP: gauge (IFV4 fitting)
FV6: 3/8" VFS female	TW4: 1/4" tube weld	
MV6: 3/8" VFS male	TW6: 3/8" tube weld	

* Other connection standard, consult factory



Ordering Example

VSR - 100UCS - 250 - 10 - 4P - FV4 - P - P - FV4

1 - 2 - 3 - 4

Single Stage Pressure Regulators

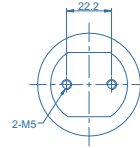
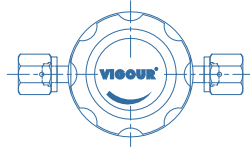
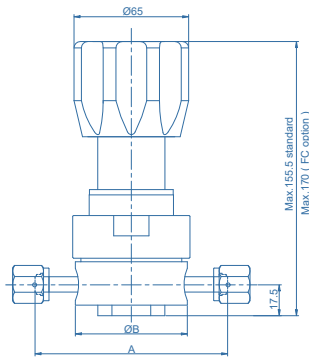
VSR-210UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Force compensation has wider flow capacity
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



Dimensions (mm)

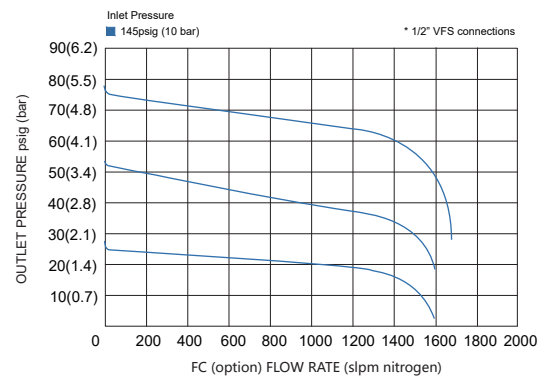
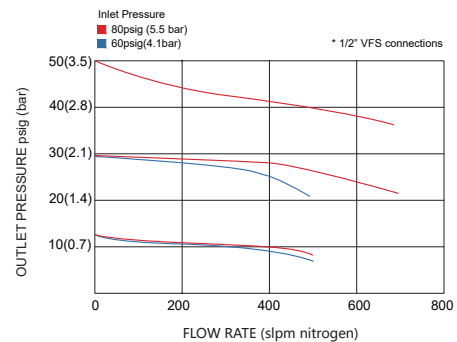


Connections	B	A	
		inch	(mm)
FV4	50.8	3.70	(94.0)
MV4		4.00	(101.6)
TW4		3.46	(87.9)
FV6		5.22	(132.6)
MV6	63.5	4.00	(101.6)
TW6		5.22	(132.6)
FV8		4.34	(110.2)
MV8			
TW8			

Technical Data

Type:	single-stage
Inlet pressure P1:	max. 3000 psig
Outlet pressure P2:	30/60/100/150/250 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" or 1/2" VFS fitting or tube weld
Bonnet port:	1/8" NPT(F) (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.65, Cv=1.1 (HF option)
Supply pressure effect:	3.5 psig rise in delivery pressure per 100 psig source pressure drop 4.2 psig rise in delivery pressure per 100 psig source pressure drop (FC option)
Weight:	approx. 2.0kg

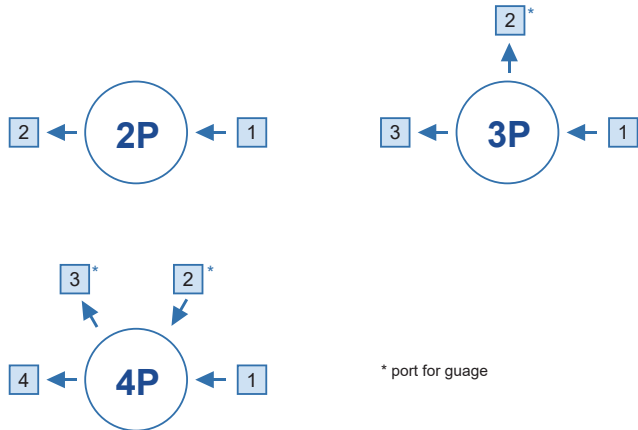
Flowchart



Single Stage Pressure Regulators

VSR-210UB Series

Ordering Information



Inlet/Outlet Connection

FV4: 1/4" VFS female

MV4: 1/4" VFS male

FV6: 3/8" VFS female

MV6: 3/8" VFS male

FV8: 1/2" VFS female

MV8: 1/2" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

TW4: 1/4" tube weld

TW6: 3/8" tube weld

TW8: 1/2" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory

Port Selection

VSR - 210UBPS - 117 - V4 - 4P - 1 - 2 - 3 - 4 - R25-HF-FC-VS

Installation

None: bottom mount

P: panel mount

* Panel hole $\Phi 37\text{mm}$

Materials

S: 316L

SHP: 316L body

Hastelloy® C22 poppet

*All options diaphragm material is Hastelloy® C276

Inlet Pressure

20: 300 psig

117: 1700 psig (standard)

200: 3000 psig*

* Not available with outlet pressure:
V2 / V4 / 2 / 4

Port Config

2P: 2 ports

3P: 3 ports

4P: 4 ports

Outlet Pressure

V2: Vac to 30 psig*

V4: Vac to 60 psig*

V7: Vac to 100 psig*

V10: Vac to 150 psig*

2: to 30 psig

4: to 60 psig

7: to 100 psig

10: to 150 psig

P17: Preset to 250 psig*

* 250 psig outlet pressure preset at
800 psig (55 bar) inlet pressure.

* With the V option, the negative pressure
can not be adjusted, only the pressure
gauge shows the negative pressure.

Valve seat Option

None: PCTFE

VS: Vespel®

Option

FC: Force compensation

* Force compensation feature inlet
pressure Max. 300 psig

* FC option is available with
connection size 1/2 inch

* Not available with outlet pressure:
V2 / V4 / 2 / 4

Cv Option

None: Cv=0.65

HF: Cv=1.1

Surface Finish

None: 10 $\mu\text{in. Ra}$

R25: 25 $\mu\text{in. Ra}$

Ordering Example

VSR - 210UBS - 117 - V4 - 2P - MV4 - MV4

1 - 2

Single Stage Pressure Regulators

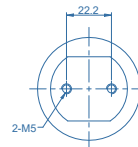
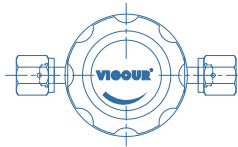
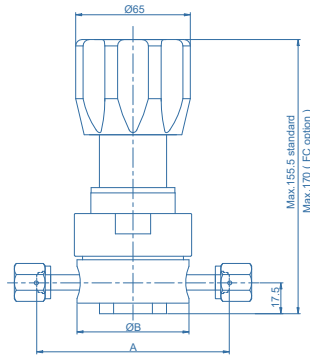
VSR-210UC Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max, 10µin. Ra average surface finish (10µin. Ra max, 7µin. Ra max, 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Force compensation has wider flow capacity
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



Dimensions (mm)

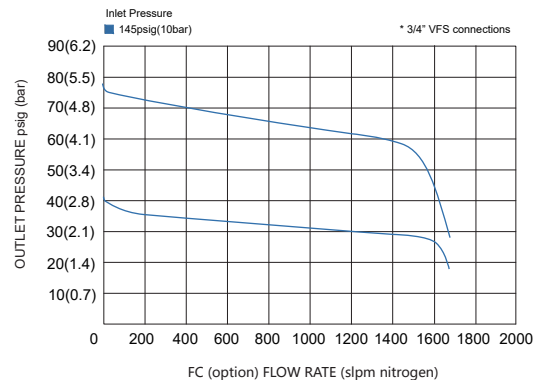
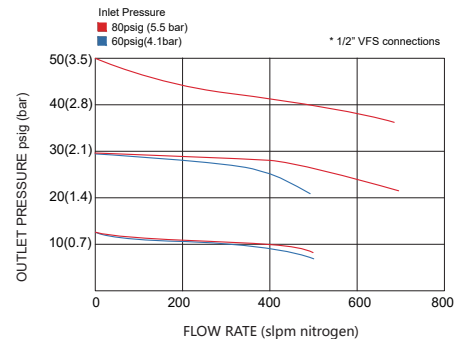


Connections	B	A	
		inch	(mm)
FV4	50.8	3.70	(94.0)
MV4		4.00	(101.6)
TW4		3.46	(87.9)
FV6		5.22	(132.6)
MV6	63.5	4.00	(101.6)
TW6		5.22	(132.6)
FV8		4.34	(110.2)
MV8		6.26	(159.0)
TW8	5.00	5.00	(127.0)
FV12			
MV12			
TW12			

Technical Data

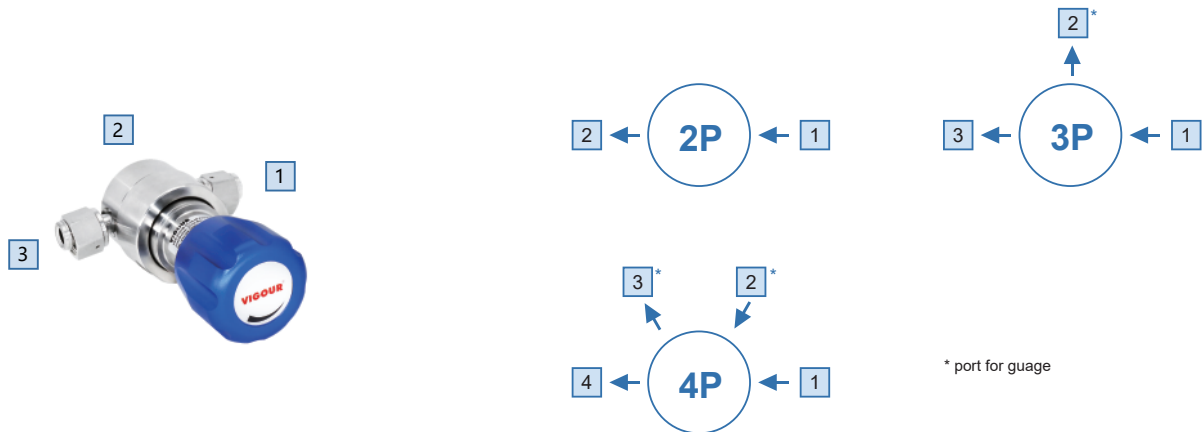
Type:	single-stage
Inlet pressure P1:	max. 3000 psig
Outlet pressure P2:	30/60/100/150/250 psig
Surface finish:	15µin. Ra max / 10µin. Ra avg (10µin. Ra max., 7µin. Ra max., 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" / 1/2" or 3/4" VFS fitting or tube weld
Bonnet port:	1/8" NPT(F) (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.65, Cv=1.1 (HF option)
Supply pressure effect:	3.5 psig rise in delivery pressure per 100 psig source pressure drop 4.2 psig rise in delivery pressure per 100 psig source pressure drop (FC option)
Weight:	approx. 2.0kg

Flowchart



Single Stage Pressure Regulators VSR-210UC Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male
FV8: 1/2" VFS female

MV8: 1/2" VFS male
FV12: 3/4" VFS female
MV12: 3/4" VFS male
IFV4: 1/4" (gauge female threaded connection machined on the body)

TW4: 1/4" tube weld
TW6: 3/8" tube weld
TW8: 1/2" tube weld
TW12: 3/4" tube weld
P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory

Port Selection

VSR - 210UCPS-117-V4-4P-1-2-3-4-R5-HF-FC-VS

Installation

None: bottom mount
P: panel mount

* Panel hole $\Phi 37\text{mm}$

Materials

S: 316L secondary remelt body
316L poppet and nozzle
SH: 316L secondary remelt body
Hastelloy® C22 internals
SHP: 316L secondary remelt body
Hastelloy® C22 poppet
316L nozzle

*All options diaphragm material is Hastelloy® C276

Inlet Pressure

20: 300 psig
117: 1700 psig (standard)
200: 3000 psig*

* Not available with outlet pressure:
V2 / V4 / 2 / 4

Port Config

2P: 2 ports
3P: 3 ports
4P: 4 ports

Outlet Pressure

V2: Vac to 30 psig*
V4: Vac to 60 psig*
V7: Vac to 100 psig*
V10: Vac to 150 psig*
2: to 30 psig
4: to 60 psig
7: to 100 psig
10: to 150 psig
P17: Preset to 250 psig*

* 250 psig outlet pressure preset at
800 psig (55 bar) inlet pressure.

* With the V option, the negative pressure
can not be adjusted, only the pressure
gauge shows the negative pressure.

Valve seat Option

None: PCTFE
VS: Vespel®

Option

FC: Force compensation

* Force compensation feature inlet
pressure Max. 300 psig

* FC option is available with
connection size 1/2 or 3/4 inch

* Not available with outlet pressure:
V2 / V4 / 2 / 4

* connection size 3/4 inch
Max. 2400 psig

Cv Option

None: Cv=0.65
HF: Cv=1.1

Surface Finish

None: 15 $\mu\text{in. Ra max}$
R10: 10 $\mu\text{in. Ra max}$
R7: 7 $\mu\text{in. Ra max}$
R5: 5 $\mu\text{in. Ra max}$

Ordering Example

VSR - 210UCS - 117 - V4 - 2P - MV4 - FV4

1 - 2

Single Stage Pressure Regulators

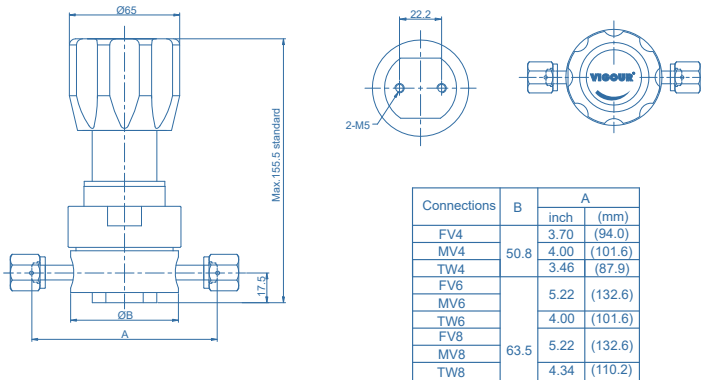
VSR-410UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- High inlet pressure type: Max. 3000 psig
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design
- Sub-atmospheric pressure delivery optional



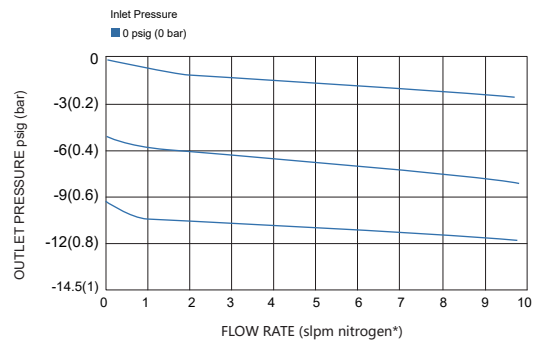
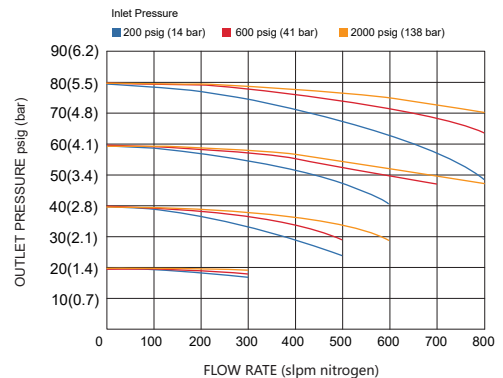
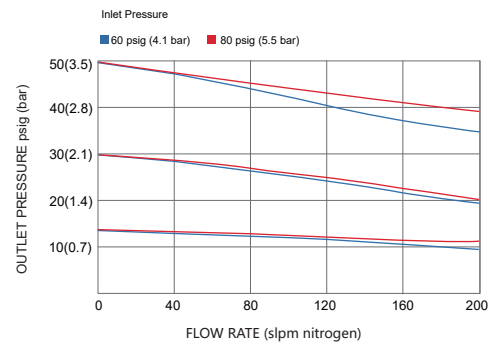
Dimensions (mm)



Technical Data

Type:	single-stage
Inlet pressure P ₁ :	max. 3000 psig
Outlet pressure P ₂ :	-12.5~30/30/60/100/150 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" or 1/2" VFS fitting or tube weld
Bonnet port:	1/8" NPT(F) (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.45
Supply pressure effect:	1.6 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 2.0kg

Flowchart

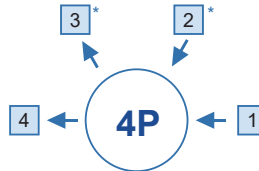
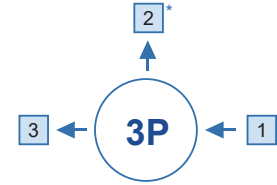


* The volumetric flow rate under normal conditions (0°C, 1 atm) when N₂ gas is flowing.

Single Stage Pressure Regulators

VSR-410UB Series

Ordering Information



* port for gauge

Inlet/Outlet Connection

FV4: 1/4" VFS female

MV4: 1/4" VFS male

FV6: 3/8" VFS female

MV6: 3/8" VFS male

FV8: 1/2" VFS female

MV8: 1/2" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

TW4: 1/4" tube weld

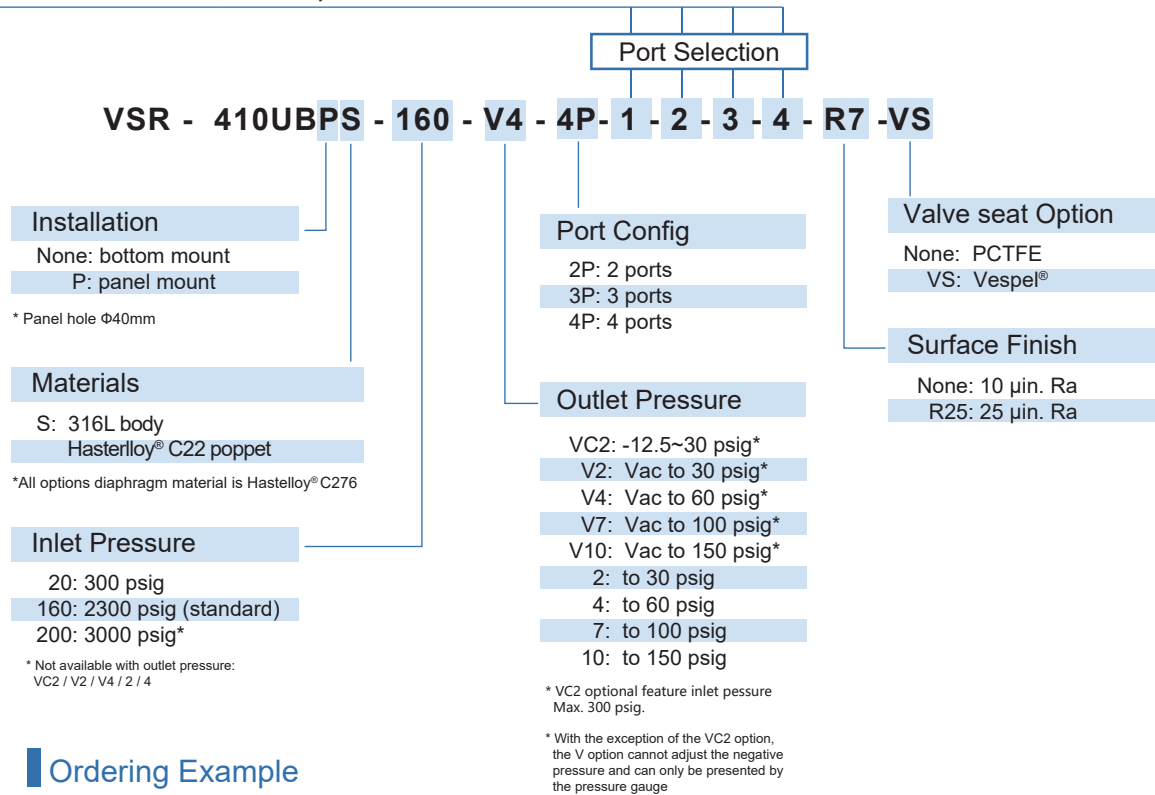
TW6: 3/8" tube weld

TW8: 1/2" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 410UBS - 160 - V4 - 2P - MV4 - MV4

1 - 2

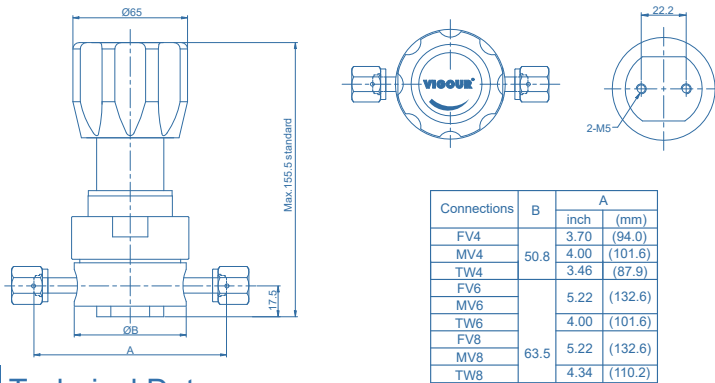
Single Stage Pressure Regulators

VSR-410UC Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max, 10µin. Ra average surface finish (10µin. Ra max, 7µin. Ra max, 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- High inlet pressure type: Max. 3000 psig
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design
- Sub-atmospheric pressure delivery option

Dimensions (mm)

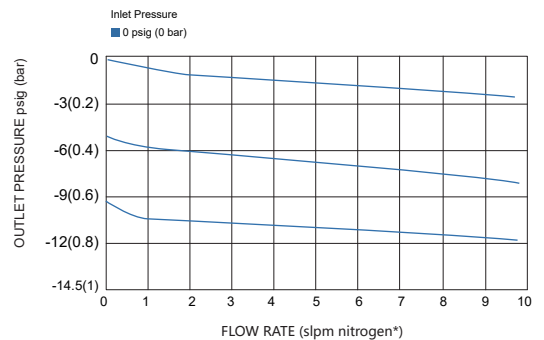
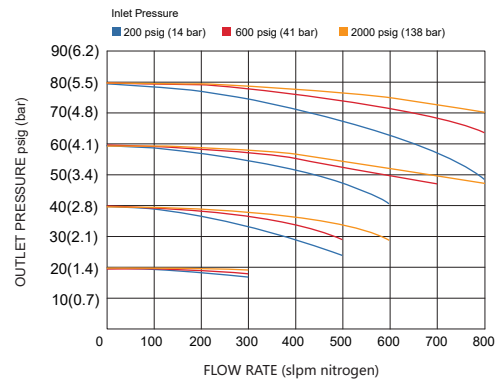
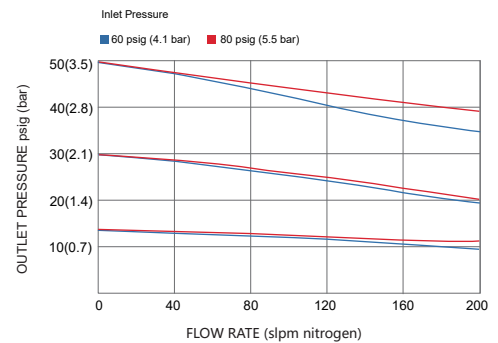


Technical Data

Type:	single-stage
Inlet pressure P ₁ :	max. 3000 psig
Outlet pressure P ₂ :	-12.5~30/30/60/100/150 psig
Surface finish:	15µin. Ra max / 10µin. Ra avg (10µin. Ra max., 7µin. Ra max., 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" / 1/2" or 3/4" VFS fitting or tube weld
Bonnet port:	1/8" NPT(F) (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.45
Supply pressure effect:	1.6 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 2.0kg



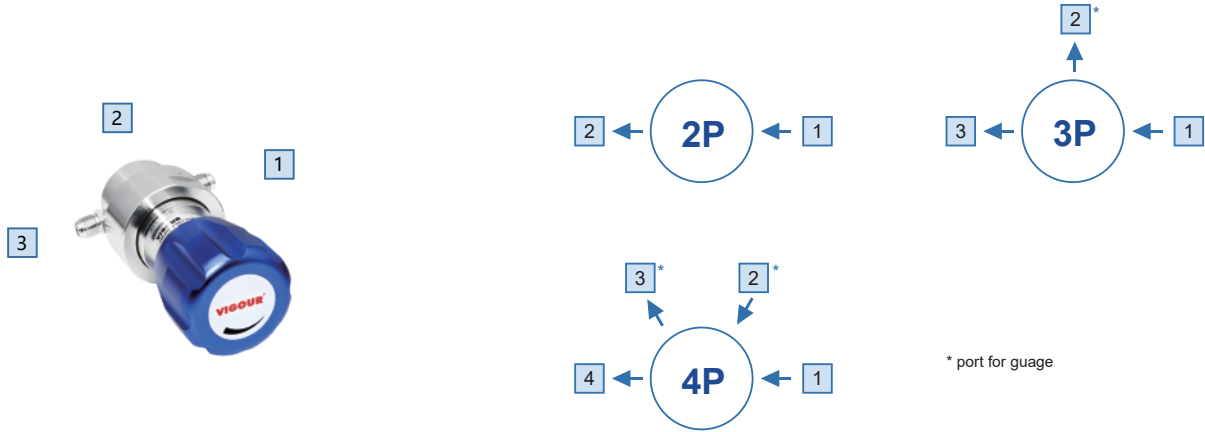
Flowchart



* The volumetric flow rate under normal conditions (0°C, 1 atm) when N₂ gas is flowing.

Single Stage Pressure Regulators VSR-410UC Series

Ordering Information



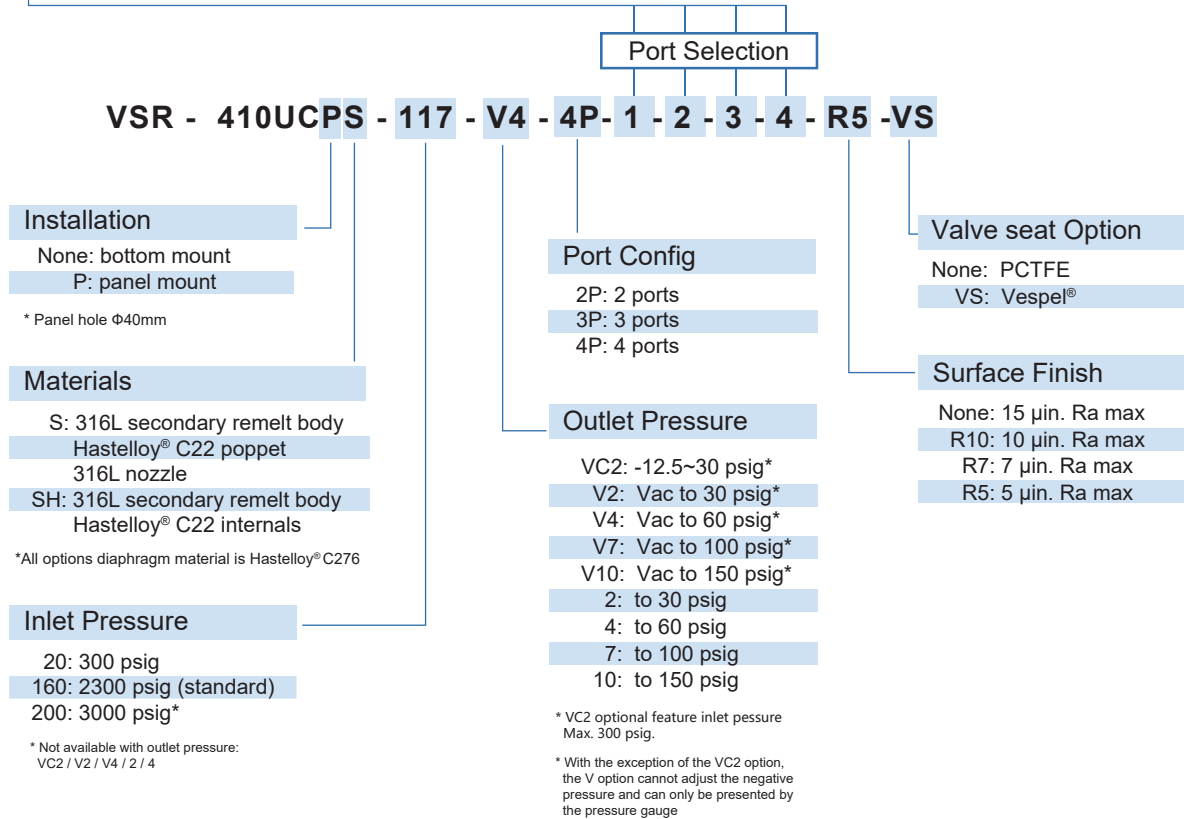
Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male

FV8: 1/2" VFS female
MV8: 1/2" VFS male
IFV4: 1/4" (gauge female threaded connection
machined on the body)

TW4: 1/4" tube weld
TW6: 3/8" tube weld
TW8: 1/2" tube weld
P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 410UCS - 160 - V4 - 2P - MV4 - FV4

1 - 2

Single Stage Pressure Regulators

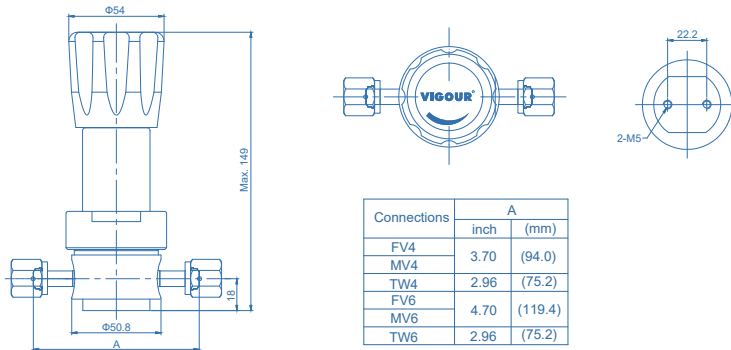
VSR-510UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



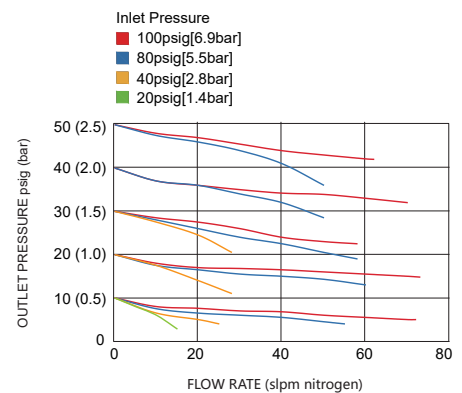
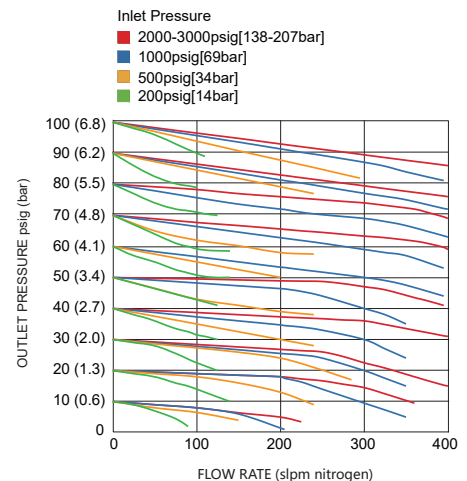
Dimensions (mm)



Technical Data

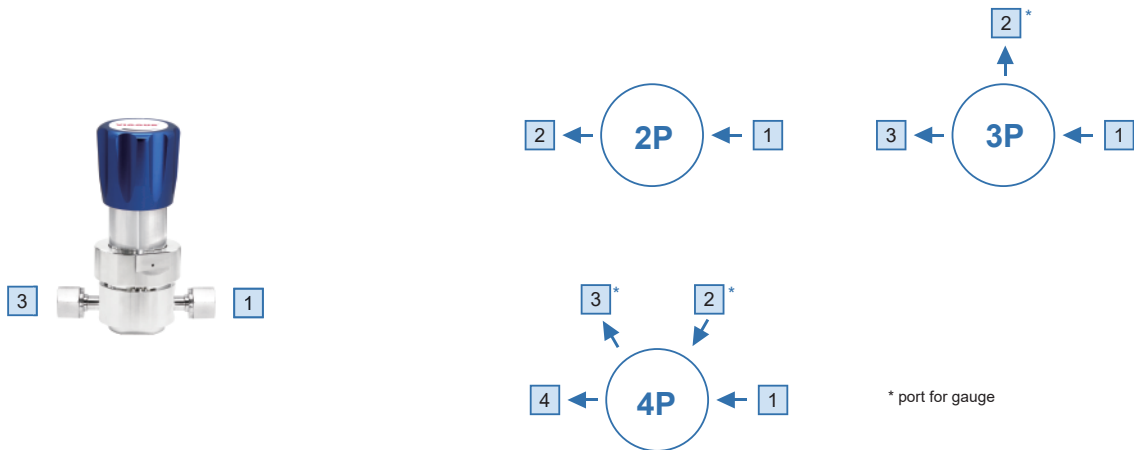
Type:	single-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	10/30/60/100/150 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (VespeI® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.09 (Cv=0.15 optional)
Supply pressure effect:	0.35 psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.09 0.5psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.15
Weight:	approx. 1.35kg

Flowchart



Single Stage Pressure Regulators VSR-510UB Series

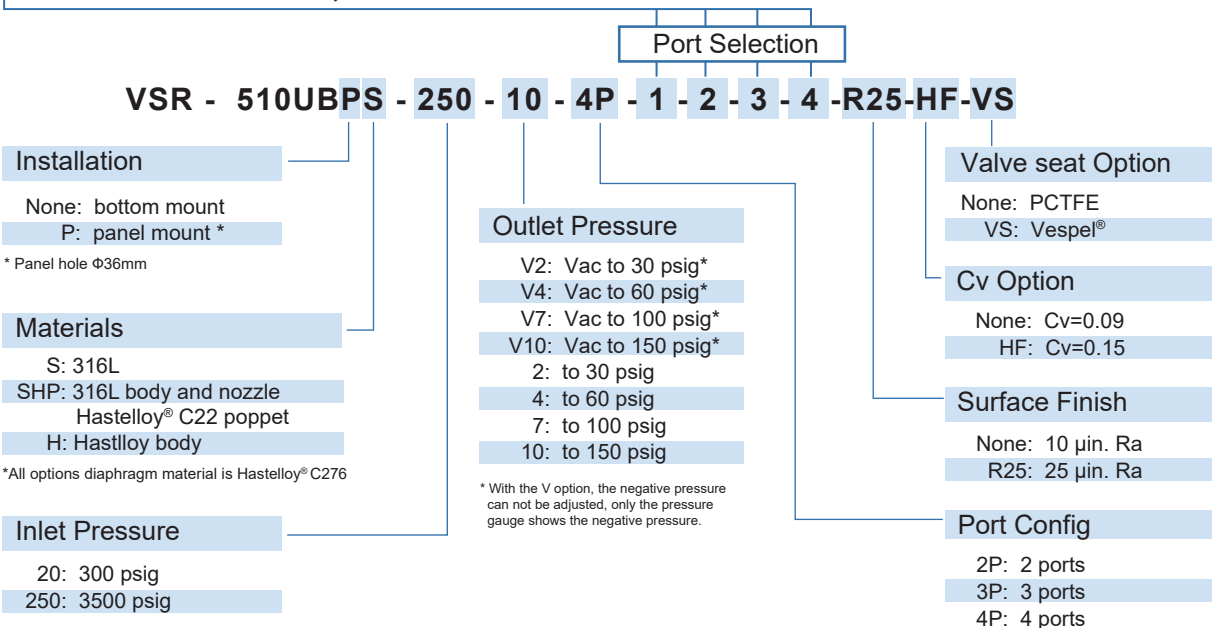
Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female	IFV4: 1/4" (gauge female threaded connection machined on the body)	P: gauge (1/4" VFS fitting)
MV4: 1/4" VFS male		IP: gauge (IFV4 fitting)
FV6: 3/8" VFS female	TW4: 1/4" tube weld	
MV6: 3/8" VFS male	TW6: 3/8" tube weld	

* Other connection standard, consult factory



Ordering Example

VSR - 510UBS - 250 - 10 - FV4 - P - P - FV4
1 - 2 - 3 - 4

Single Stage Pressure Regulators

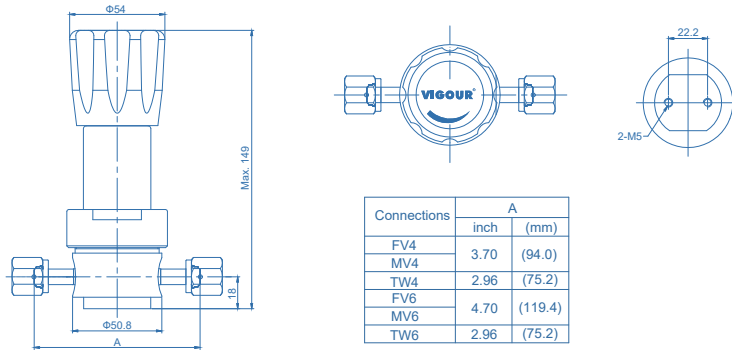
VSR-510UC Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



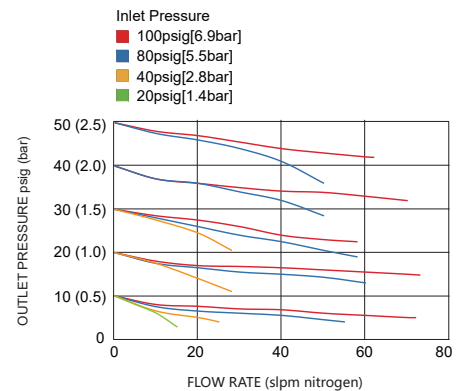
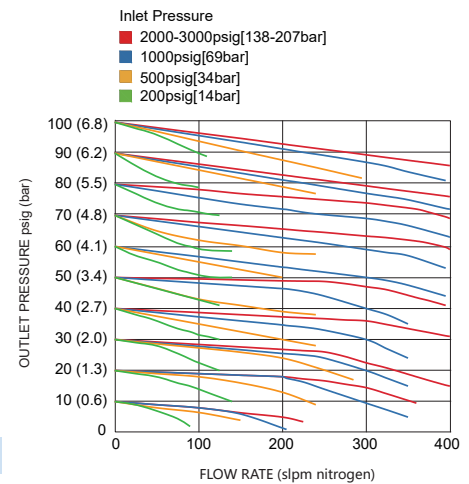
Dimensions (mm)



Technical Data

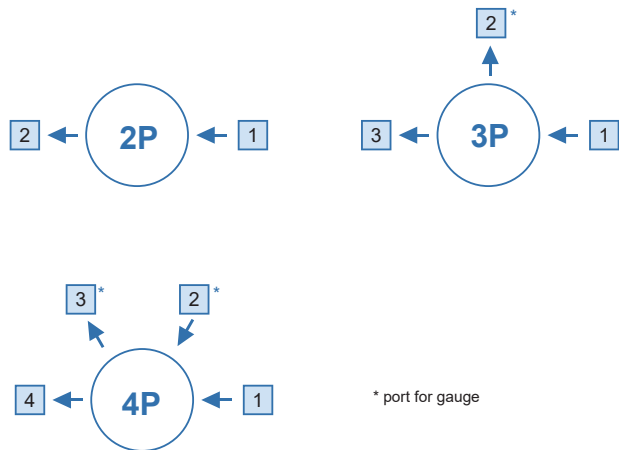
Type:	single-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	10/30/60/100/150 psig
Surface finish:	15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.09 (Cv=0.15 optional)
Supply pressure effect:	0.35 psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.09 0.5psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.15
Weight:	approx. 1.35kg

Flowchart



Single Stage Pressure Regulators VSR-510UC Series

Ordering Information



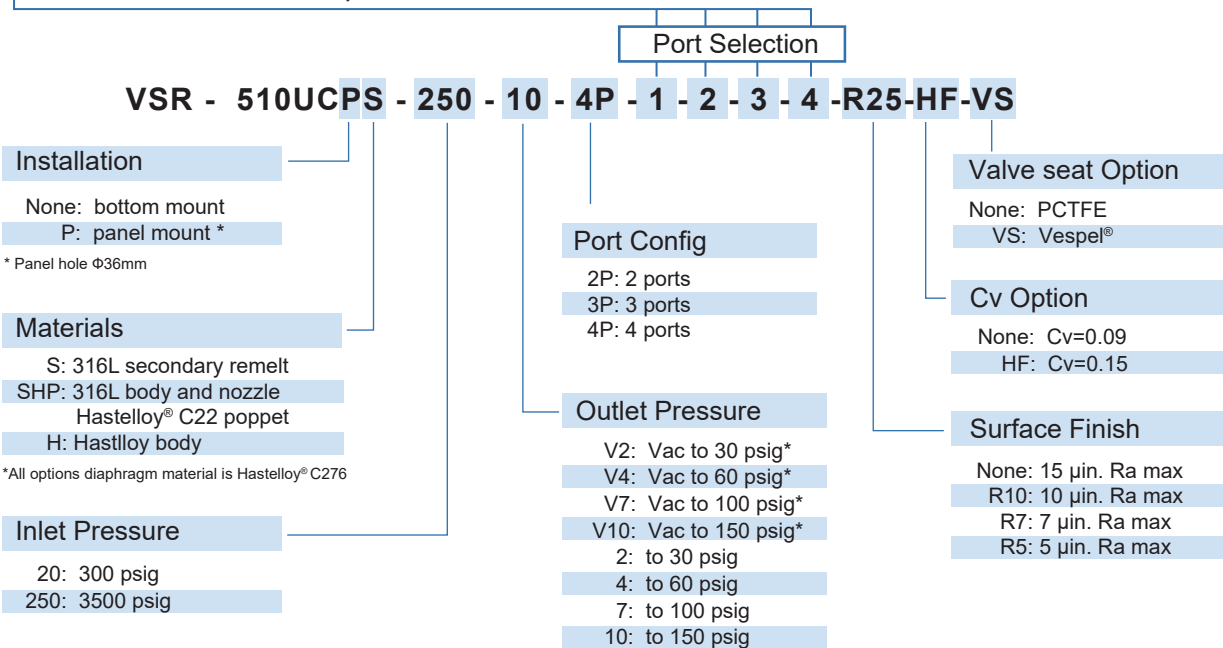
Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)
TW4: 1/4" tube weld
TW6: 3/8" tube weld

P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



* With the V option, the negative pressure can not be adjusted, only the pressure gauge shows the negative pressure.

Ordering Example

VSR - 510UCS - 250 - 10 - FV4 - P - P - FV4

1 - 2 - 3 - 4

Single Stage Pressure Regulators

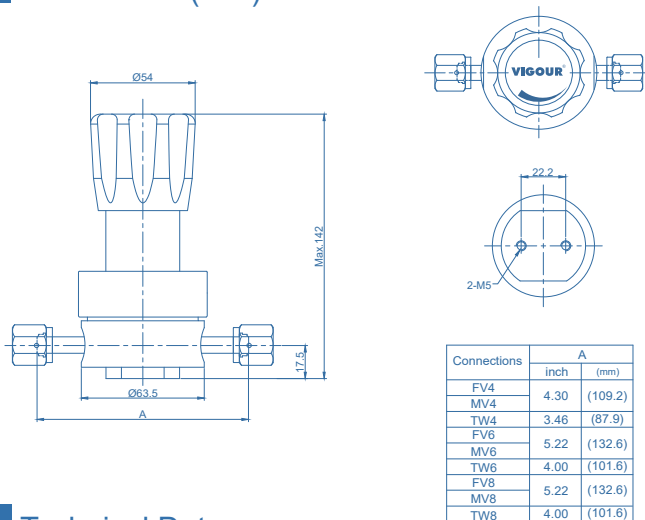
VSR-610UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested



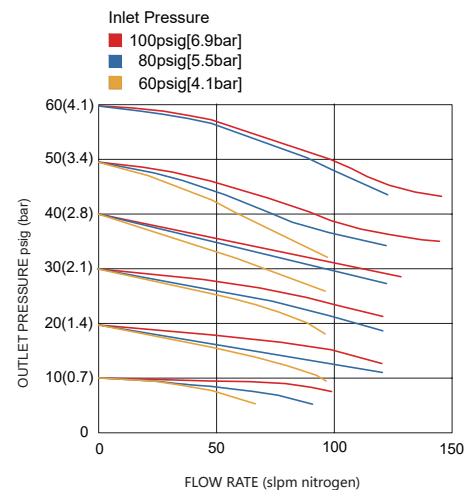
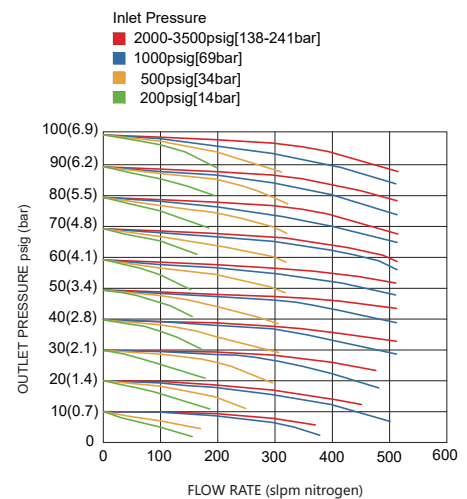
Dimensions (mm)



Technical Data

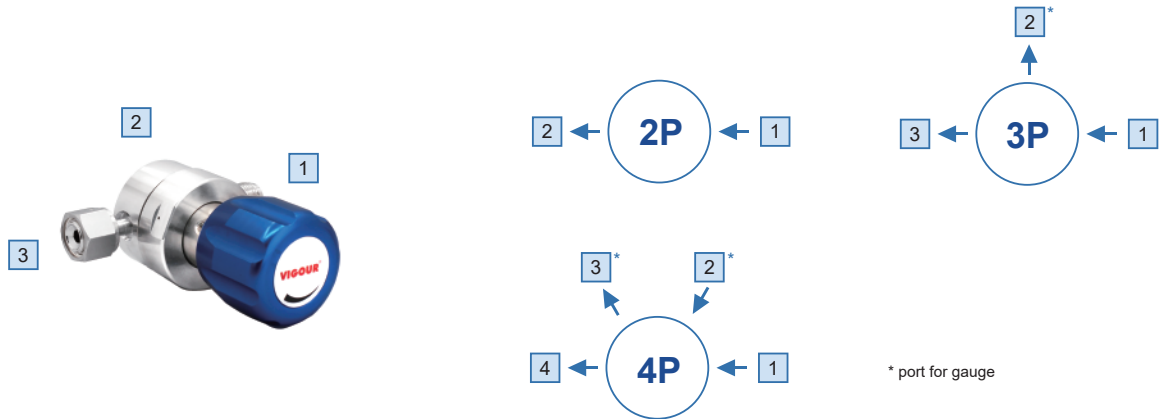
Type:	single-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	10/30/60/100 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (VespeI® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" or 1/2" VFS fitting or tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.13
Supply pressure effect:	0.25 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 1.54kg

Flowchart



Single Stage Pressure Regulators VSR-610UB Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female

MV4: 1/4" VFS male

FV6: 3/8" VFS female

MV6: 3/8" VFS male

FV8: 1/2" VFS female

MV8: 1/2" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

TW4: 1/4" tube weld

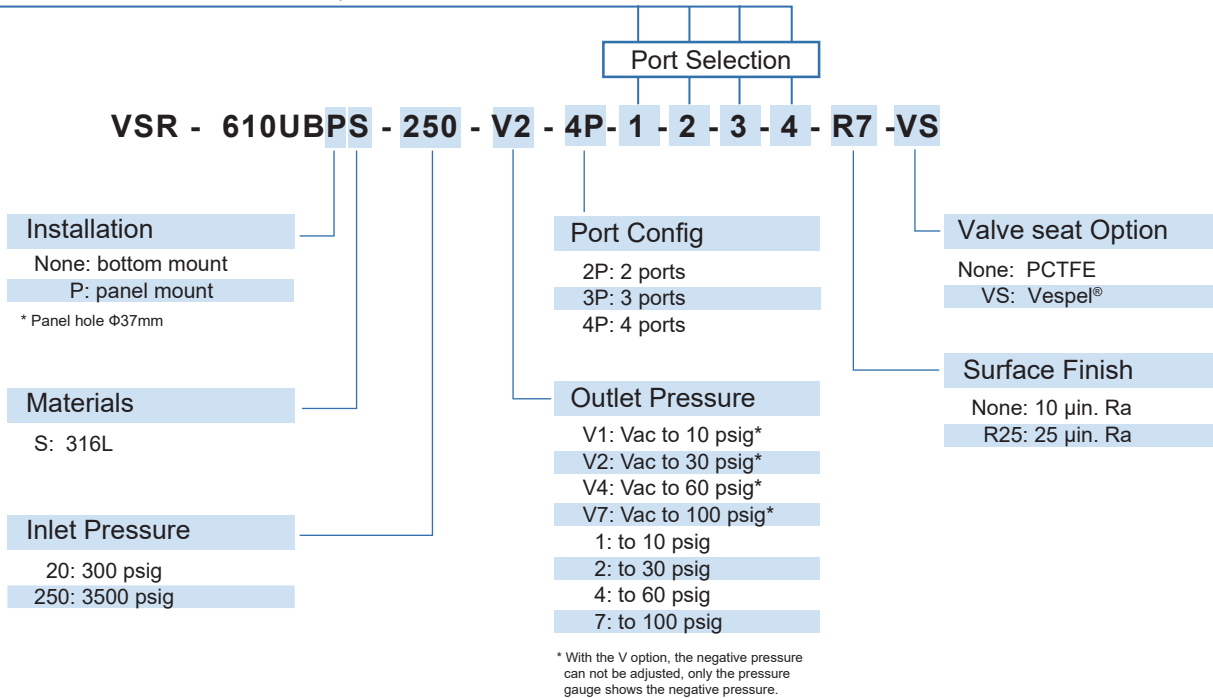
TW6: 3/8" tube weld

TW8: 1/2" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 610UBS - 250 - V4 - 2P - MV4 - FV4
1 - 2

Single Stage Pressure Regulators

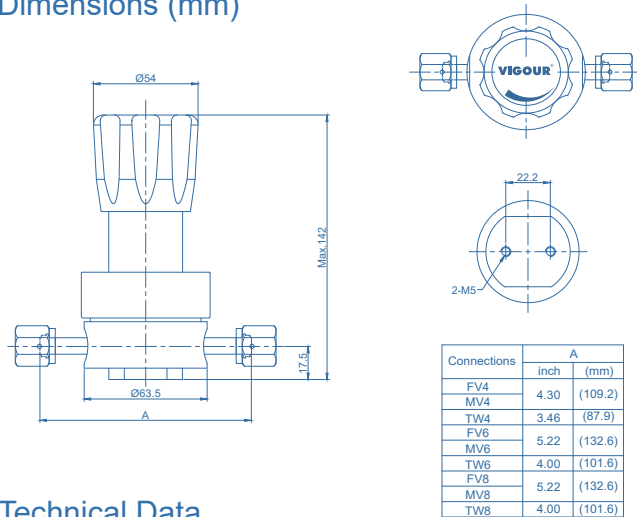
VSR-610UC Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max, 10µin. Ra average surface finish (10µin. Ra max, 7µin. Ra max, 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested



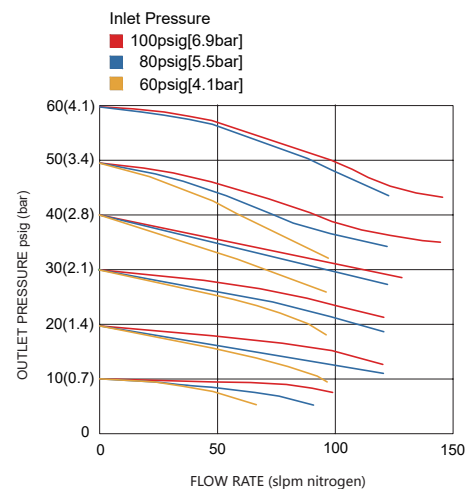
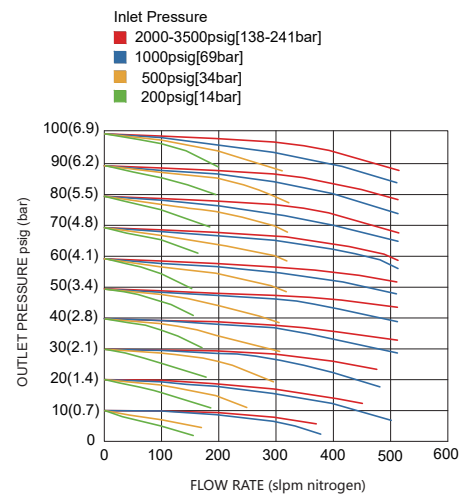
Dimensions (mm)



Technical Data

Type:	single-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	10/30/60/100 psig
Surface finish:	15µin. Ra max / 10µin. Ra avg (10µin. Ra max., 7µin. Ra max., 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" or 1/2" VFS fitting or tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.13
Supply pressure effect:	0.25 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 1.54kg

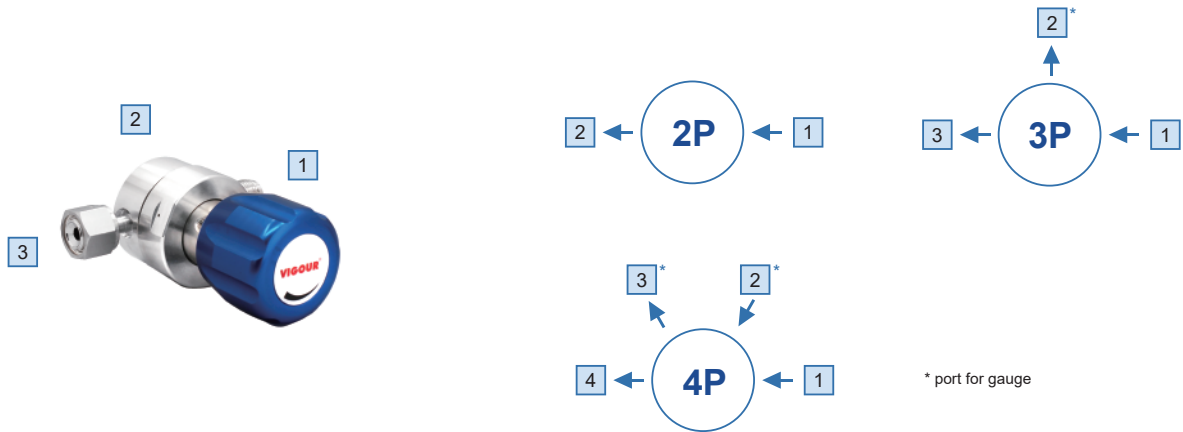
Flowchart



Single Stage Pressure Regulators

VSR-610UC Series

Ordering Information



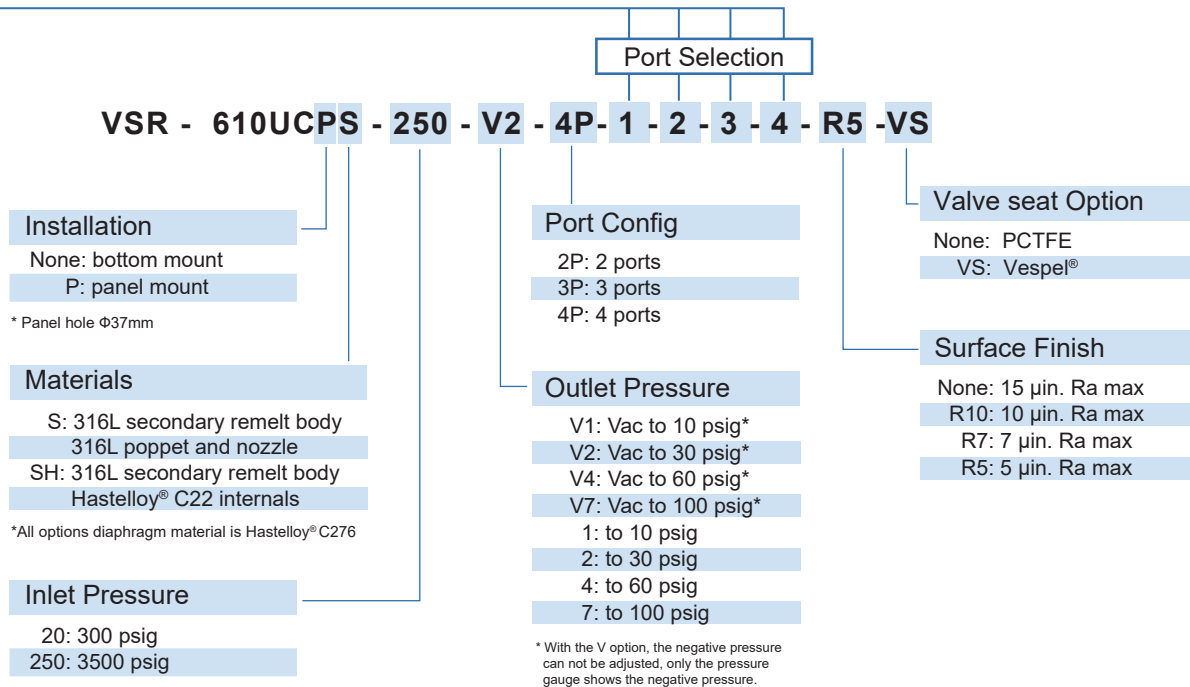
Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male

FV8: 1/2" VFS female
MV8: 1/2" VFS male
IFV4: 1/4" (gauge female threaded connection machined on the body)

TW4: 1/4" tube weld
TW6: 3/8" tube weld
TW8: 1/2" tube weld
P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 610UCS - 250 - V4 - 2P - MV4 - FV4
1 - 2

Dual Stage Pressure Regulators

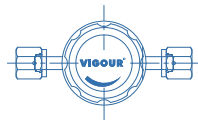
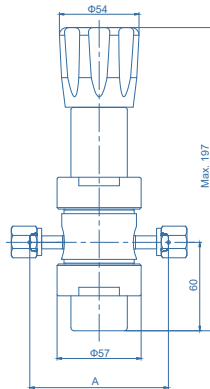
VSR-710UB Series

Product Feature

- Dual-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



Dimensions (mm)

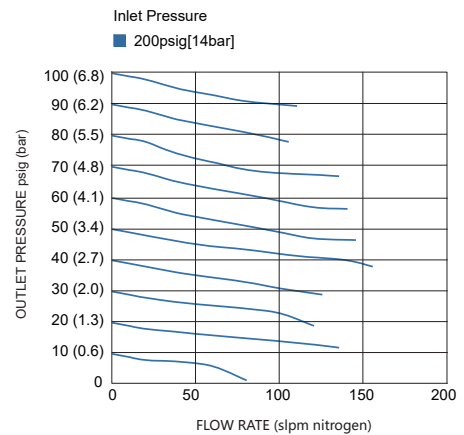


Connections	A	
	inch	(mm)
FV4	3.70	(94.0)
MV4		
FV6	4.70	(119.4)
MV6		

Technical Data

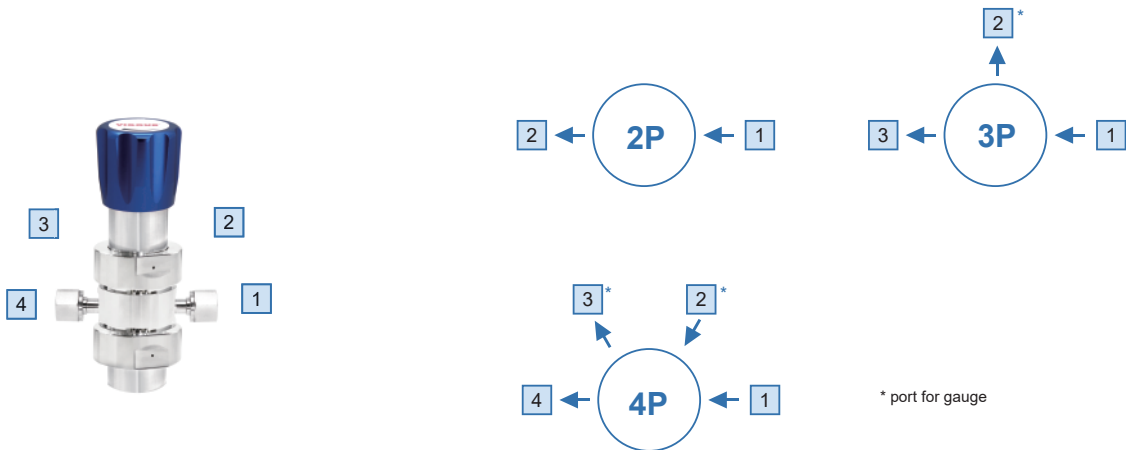
Type:	Dual-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	30/60/100 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.05
Supply pressure effect:	0.05 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 2.5kg

Flowchart



Dual Stage Pressure Regulators VSR-710UB Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female

MV4: 1/4" VFS male

FV6: 3/8" VFS female

MV6: 3/8" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

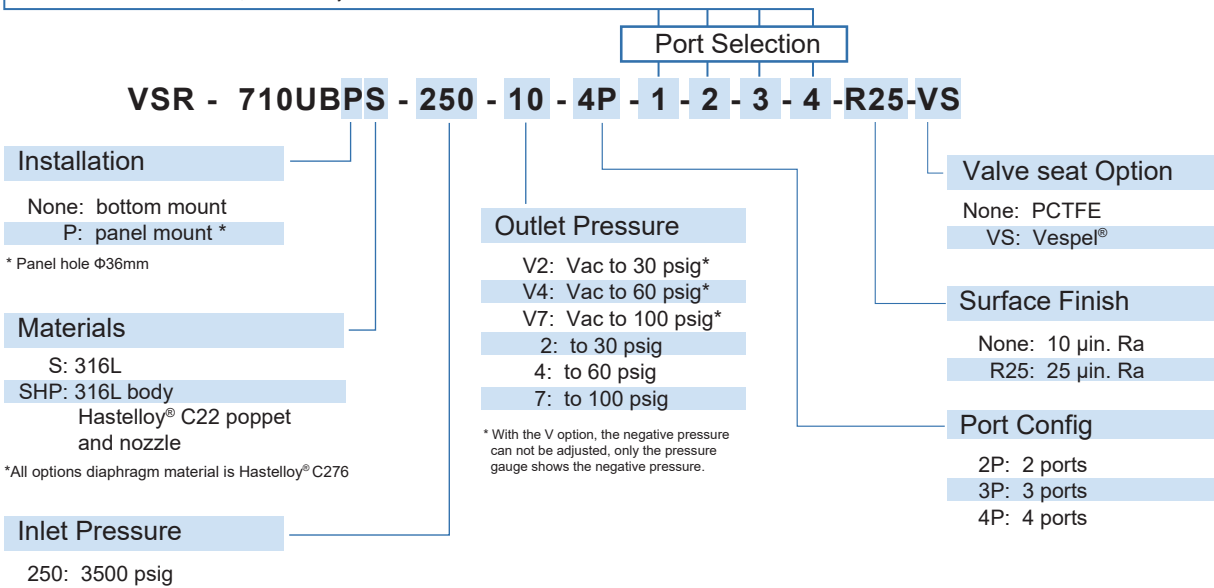
TW4: 1/4" tube weld

TW6: 3/8" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 710UBS - 250 - 10 - FV4 - P - P - FV4

1 - 2 - 3 - 4

Dual Stage Pressure Regulators

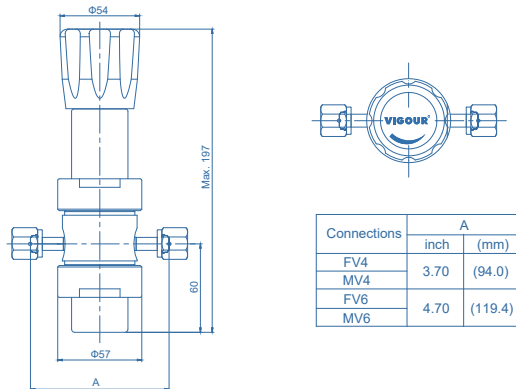
VSR-710UC Series

Product Feature

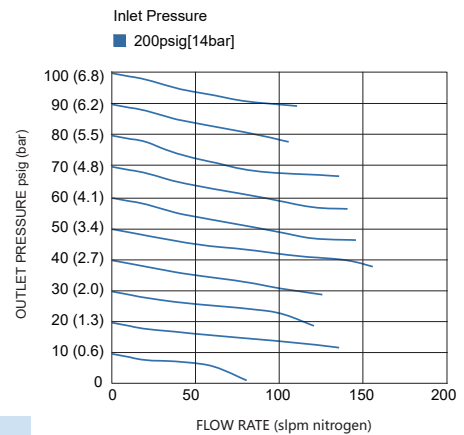
- Dual-stage pressure regulator
- 15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



Dimensions (mm)



Flowchart

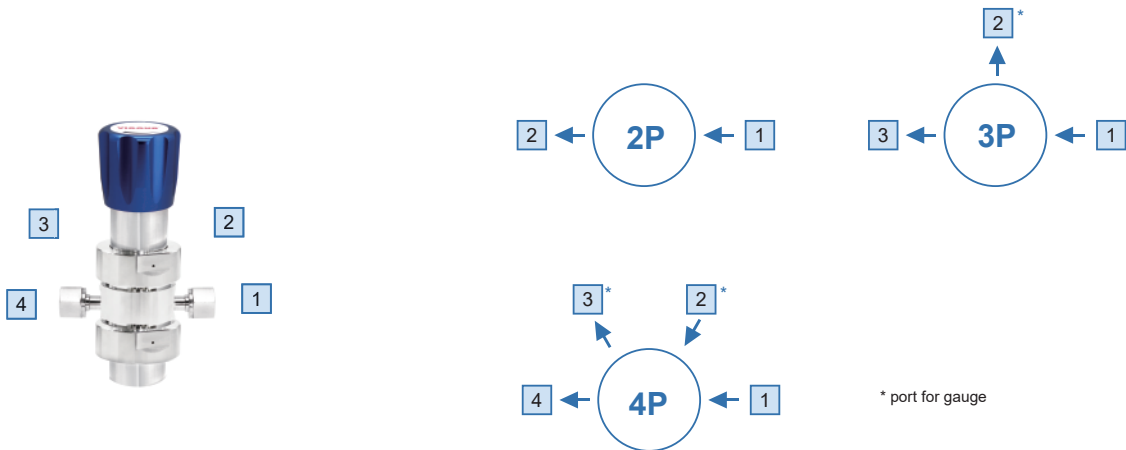


Technical Data

Type:	Dual-stage
Inlet pressure P1:	max. 3500 psig
Outlet pressure P2:	30/60/100 psig
Surface finish:	15µin. Ra max, 10µin Ra average surface finish (10µin. Ra max, 7µin. Ra max. 5µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" / 3/8" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=0.05
Supply pressure effect:	0.05 psig rise in delivery pressure per 100 psig source pressure drop
Weight:	approx. 2.5kg

Dual Stage Pressure Regulators VSR-710UC Series

Ordering Information



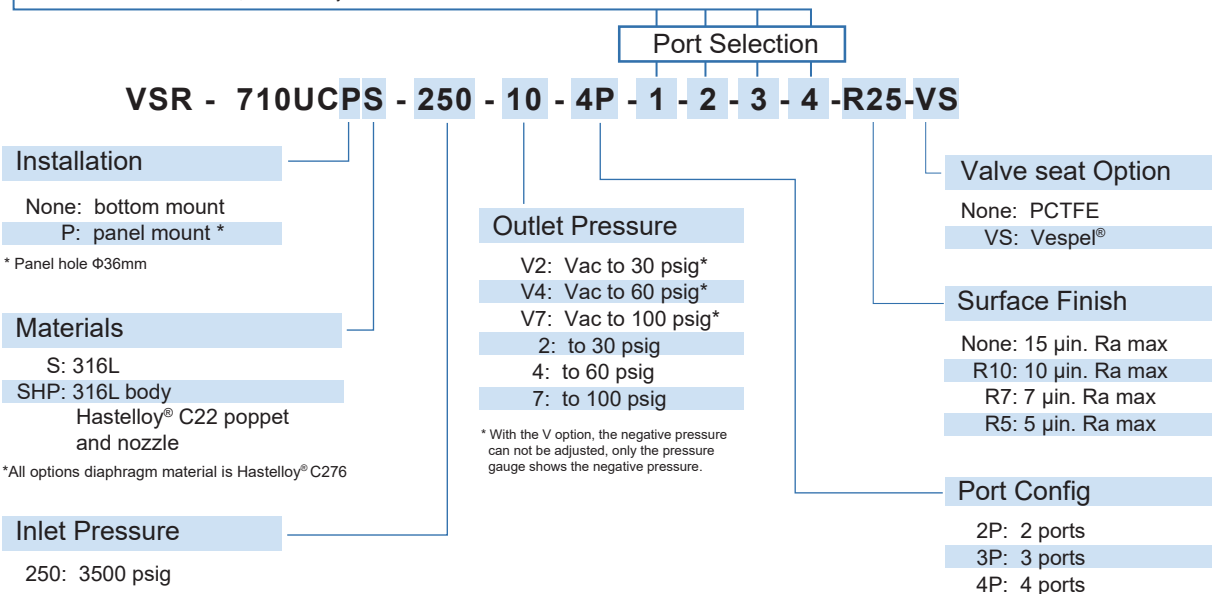
Inlet/outlet Connection

FV4: 1/4" VFS female
MV4: 1/4" VFS male
FV6: 3/8" VFS female
MV6: 3/8" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)
TW4: 1/4" tube weld
TW6: 3/8" tube weld

P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 710UCS - 250 - 10 - FV4 - P - P - FV4

1 - 2 - 3 - 4

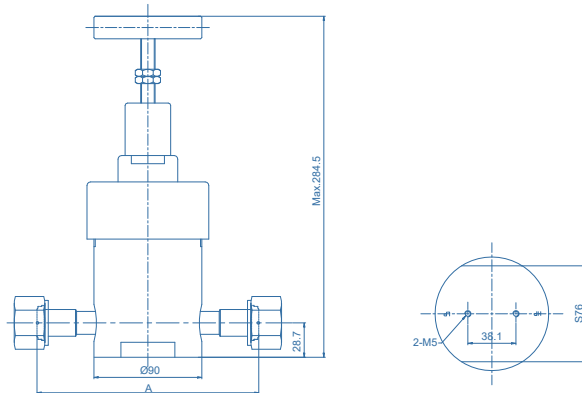
Single Stage Pressure Regulators

VSR-910UB Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max. 10µin Ra max optional
- design for bulk special gas suply system
- Tied diaphragm design with bellows sensing element
- All materials used meet ASTM A479 / A484 / A276 standards
- Metal-to-metal seal to atmosphere
- 100% helium-leak-tested

Dimensions (mm)

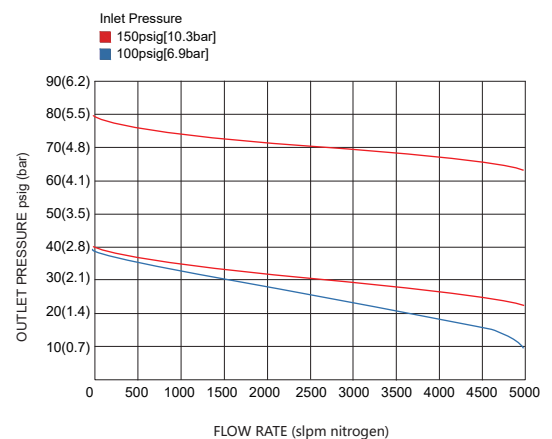


Connections	A	
	inch	(mm)
FV8	6.22	(158.0)
MV8	6.22	(158.0)
TW8	9.50	(241.4)
FV12	7.28	(185.0)
MV12	7.28	(185.0)
TW12	9.50	(241.4)
FV16	7.84	(199.2)
MV16	7.84	(199.2)
TW16	9.50	(241.4)

Technical Data

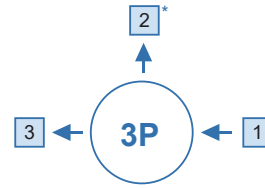
Type:	single-stage
Inlet pressure P1:	max. 3000 psig
Outlet pressure P2:	30/60/100/150 psig
Surface finish:	15µin. Ra max 10µin. Ra max (optional)
Materials	
Body:	SS 316L
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C22
Inlets and Outlets:	1/2" / 3/4" or 1" VFS fitting or tube weld
Bonnet port:	1/8" FNPT(optional)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=3.0 / Cv=4.0
Weight:	6.7kg

Flowchart



Single Stage Pressure Regulators VSR-910UB Series

Ordering Information



* port for gauge

Inlet/Outlet Connection

FV8: 1/2" VFS female

MV8: 1/2" VFS male

FV12: 3/4" VFS female

MV12: 3/4" VFS male

FV16: 1" VFS female

MV16: 1" VFS male

MV4: 1/4" VFS male

IFV4: 1/4" (gauge female threaded connection machined on the body)

TW8: 1/2" tube weld

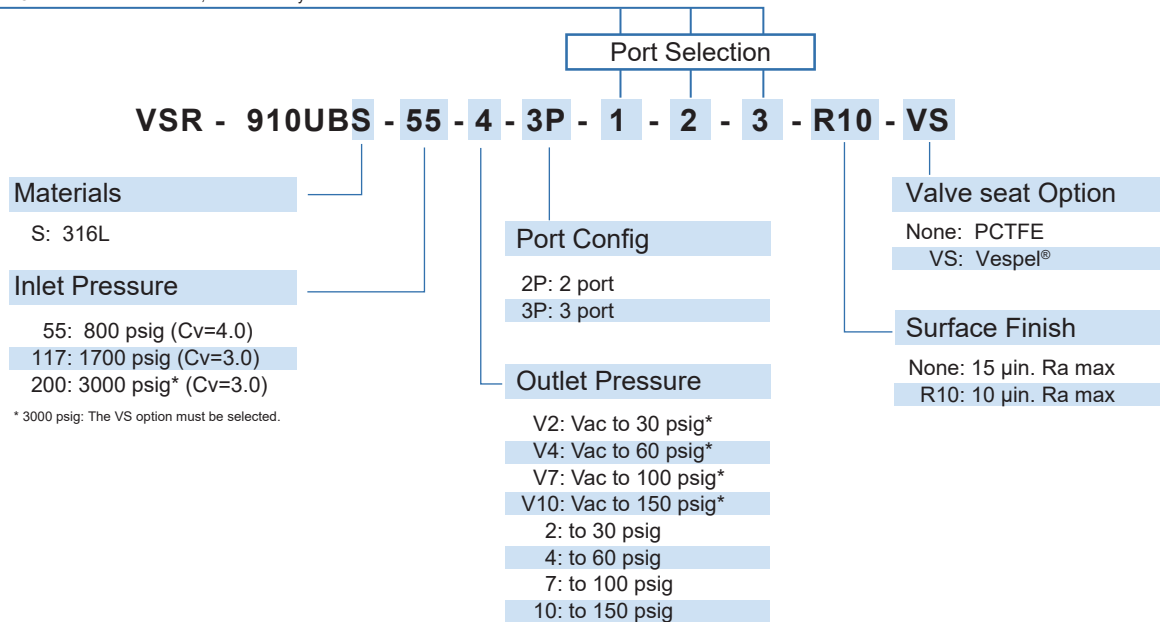
TW12: 3/4" tube weld

TW16: 1" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



* With the V option, the negative pressure can not be adjusted, only the pressure gauge shows the negative pressure.

Ordering Example

VSR - 910UBS - 55 - 10 - 2P - MV12 - FV12

1 - 2

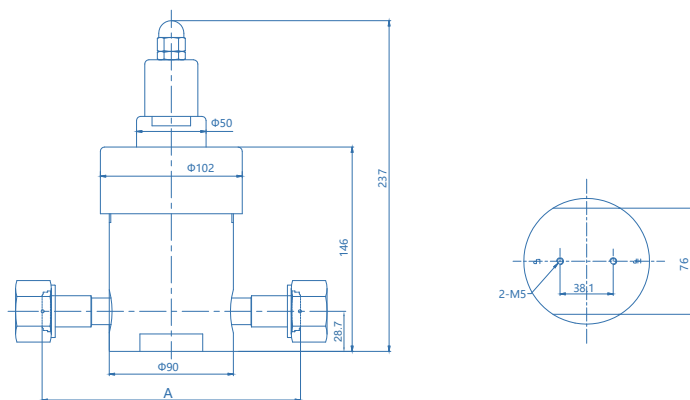
Single Stage Pressure Regulators

VSR-911UB Series

Product Feature

- Single-stage pressure regulator
- 15µin. Ra max. 10µin Ra max optional
- design for bulk special gas supply system
- Tied diaphragm design with bellows sensing element
- All materials used meet ASTM A479 / A484 / A276 standards
- Metal-to-metal seal to atmosphere
- 100% helium-leak-tested

Dimensions (mm)

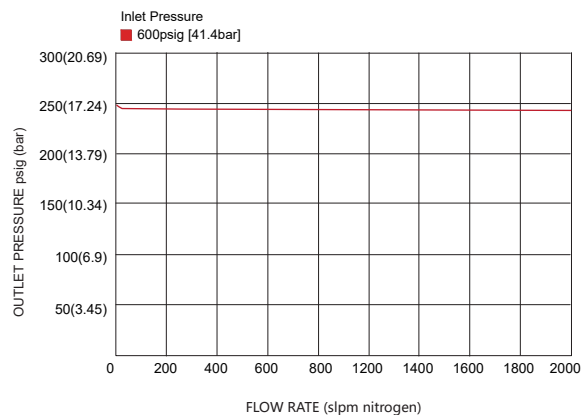


Connections	A	
	inch	(mm)
FV8	6.22	(158.0)
MV8		
TW8	9.50	(241.4)
FV12	7.28	(185.0)
MV12		
TW12	9.50	(241.4)
FV16	7.84	(199.2)
MV16		
TW16	9.50	(241.4)

Technical Data

Type:	single-stage
Inlet pressure P1:	max. 3000 psig
Outlet pressure P2:	300 psig
Surface finish:	15µin. Ra max 10µin. Ra max (optional)
Materials	
Body:	SS 316L
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C22
Inlets and Outlets:	1/2" / 3/4" or 1" face seal or tube weld
Bonnet port:	1/8" FNPT(option)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=3.0 / Cv=4.0
Weight:	6.7kg

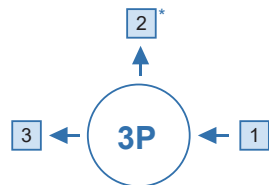
Flowchart



Single Stage Pressure Regulators

VSR-911UB Series

Ordering Information



* port for gauge

Inlet/Outlet Connection

FV8: 1/2" VFS female

MV8: 1/2" VFS male

FV12: 3/4" VFS female

MV12: 3/4" VFS male

FV16: 1" VFS female

MV16: 1" VFS male

MV4: 1/4" VFS male

IFV4: 1/4" (gauge female threaded connection machined on the body)

TW8: 1/2" tube weld

TW12: 3/4" tube weld

TW16: 1" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory

Port Selection

VSR - 911UBS - 55 - P21 - 3P - 1 - 2 - 3 - R10 - VS

Materials

S: 316L

Inlet Pressure

55: 800 psig (Cv=4.0)

117: 1700 psig (Cv=3.0)

200: 3000 psig* (Cv=3.0)

* 3000 psig: The VS option must be selected.

Port Config

2P: 2 port

3P: 3 port

Outlet Pressure

P21: Preset to 300 psig*

* 300 psig outlet pressure preset at 800 psig (55 bar) inlet pressure.

Valve seat Option

None: PCTFE

VS: Vespel®

Surface Finish

None: 15 µin. Ra max

R10: 10 µin. Ra max

Ordering Example

VSR - 911UBS - 55 - P21 - 2P - MV12 - FV12

1 - 2



Single Stage Pressure Regulators

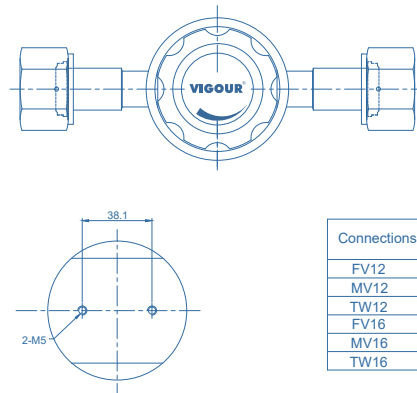
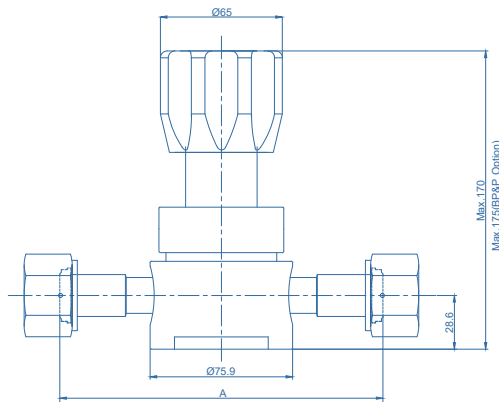
VSR-920UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 2000 slpm
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



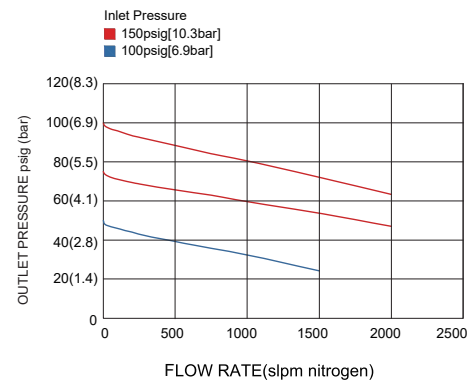
Dimensions (mm)



Technical Data

Type:	single-stage
Inlet pressure P1:	max. 300 psig
Outlet pressure P2:	30/60/100/150 psig
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Valve seat:	PFA (Vespe® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	3/4" / 1" VFS fitting or tube weld
Bonnet port:	1/8" FNPT(option)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=1.6
Weight:	approx. 2.72kg (depending on connections or options)
Supply pressure effect:	7 psig rise in delivery pressure per 100 psig source pressure drop

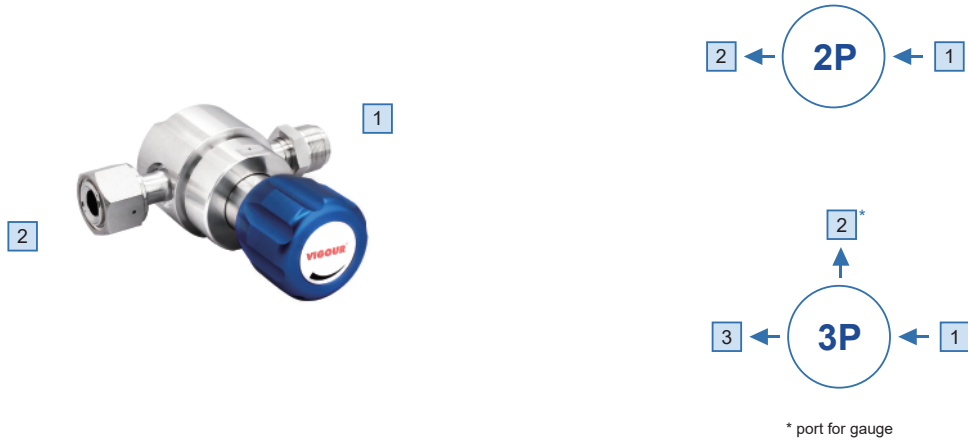
Flowchart



Single Stage Pressure Regulators

VSR-920UB Series

Ordering Information



Inlet/Outlet Connection

FV12: 3/4" VFS female

MV12: 3/4" VFS male

FV16: 1" VFS female

MV16: 1" VFS male

FV4: 1/4" VFS female

MV4: 1/4" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

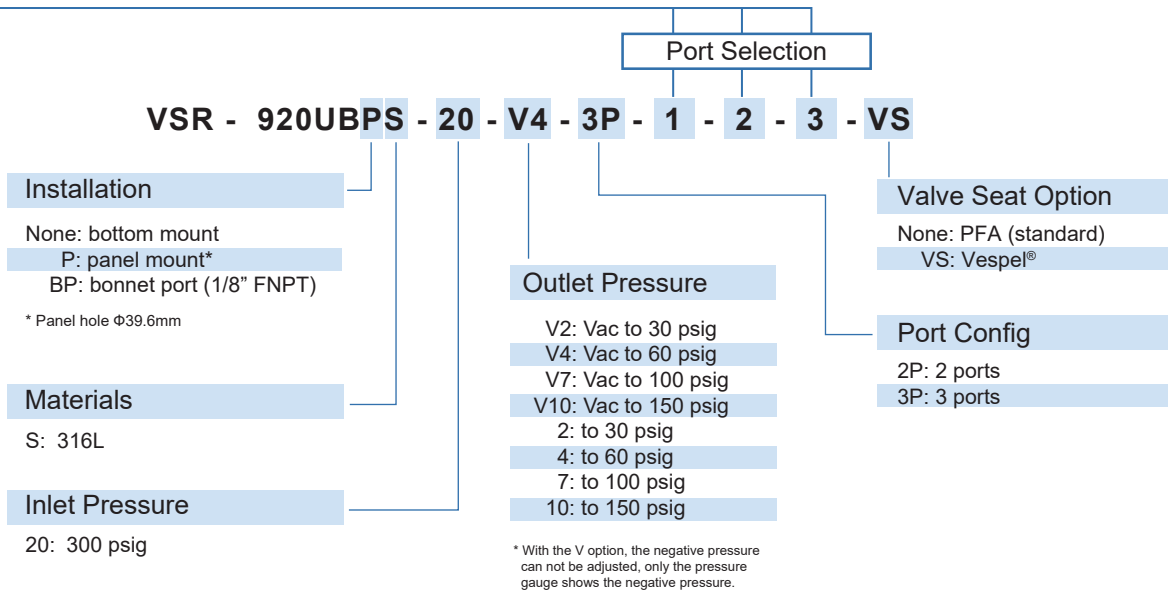
TW12: 3/4" tube weld

TW16: 1" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory



Ordering Example

VSR - 920UBS - 20 - 10 - 2P - MV12 - FV12

1 - 2



Single Stage Pressure Regulators

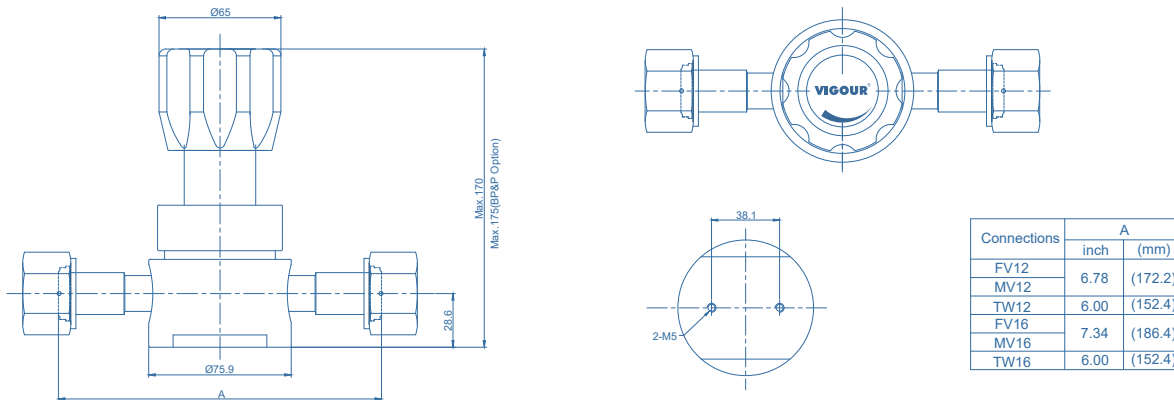
VSR-920UC Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish
- Minimized internal volume for short purge times
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 2000 slpm
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- 100% helium-leak-tested
- Tied-diaphragm design



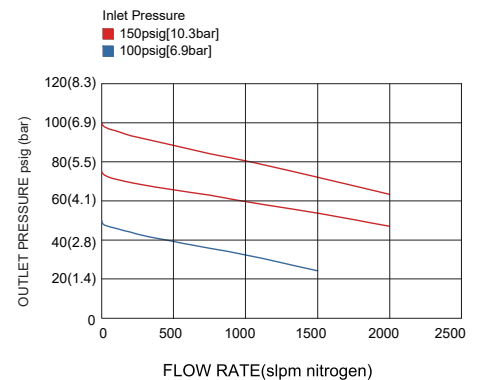
Dimensions (mm)



Technical Data

Type:	single-stage
Inlet pressure P1:	max. 300 psig
Outlet pressure P2:	30/60/100/150 psig
Surface finish:	15µin. Ra max / 10µin. Ra avg (10µin. Ra max optional)
Materials	
Body:	see ordering info
Valve seat:	PFA (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	3/4" / 1" VFS fitting or tube weld
Bonnet port:	1/8" FNPT(option)
Temperature range:	-40°F to +160°F (-40°C to +71°C)
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He
Flow capacity:	Cv=1.6
Weight:	approx. 2.72kg (depending on connections or options)
Supply pressure effect:	7 psig rise in delivery pressure per 100 psig source pressure drop

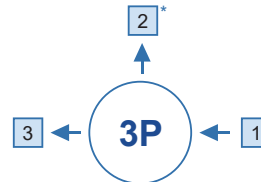
Flowchart



Single Stage Pressure Regulators

VSR-920UC Series

Ordering Information



* port for gauge

Inlet/Outlet Connection

FV12: 3/4" VFS female
MV12: 3/4" VFS male
FV16: 1" VFS female
MV16: 1" VFS male

FV4: 1/4" VFS female
MV4: 1/4" VFS male
IFV4: 1/4" (gauge female threaded connection machined on the body)

TW12: 3/4" tube weld
TW16: 1" tube weld
P: gauge (1/4" VFS fitting)
IP: gauge (IFV4 fitting)

* Other connection standard, consult factory

Port Selection

VSR - 920UCPS - 20 - V4 - 3P - 1 - 2 - 3 - VS

Installation

None: bottom mount
P: panel mount*
BP: bonnet port (1/8" FNPT)

* Panel hole Φ39.6mm

Materials

S: 316L

Inlet Pressure

20: 300 psig

Outlet Pressure

V2: Vac to 30 psig
V4: Vac to 60 psig
V7: Vac to 100 psig
V10: Vac to 150 psig
2: to 30 psig
4: to 60 psig
7: to 100 psig
10: to 150 psig

* With the V option, the negative pressure can not be adjusted, only the pressure gauge shows the negative pressure.

Valve Seat Option

None: PFA (standard)
VS: Vespel®

Port Config

2P: 2 ports
3P: 3 ports

Ordering Example

VSR - 920UCS - 20 - 10 - 2P - MV12 - FV12

1 - 2



High Pressure Regulators

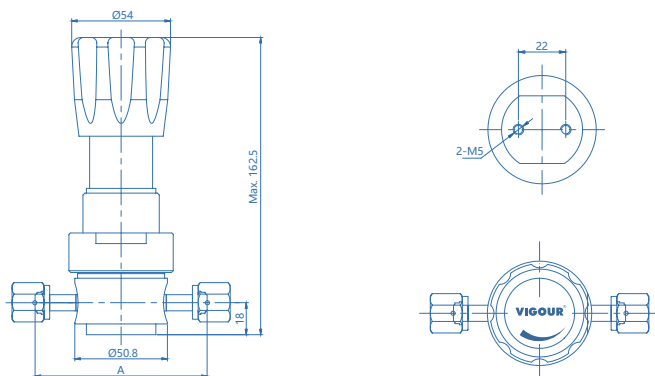
VSR-930UB Series

Product Feature

- Single-stage pressure regulator
- 10µin. Ra surface finish (25µin. Ra optional)
- Minimized internal volume for short purge times
- Piston sensing element
- All materials used meet ASTM A479 / A484 / A276 standards
- Internal connectors for pressure gauges
- Flow capacity: to 30 slpm (standard), to 120 slpm (optional)
- High control accuracy
- Metal-to-metal seal to atmosphere
- Simple outlet pressure limitation by hand-wheel
- Applies only to inert gases



Dimensions (mm)

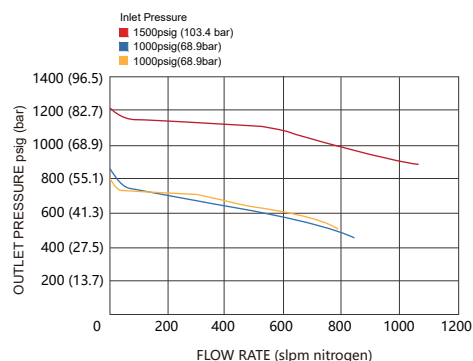


Connections	A	
	inch	mm
FV4	3.70	94
MV4		

Technical Data

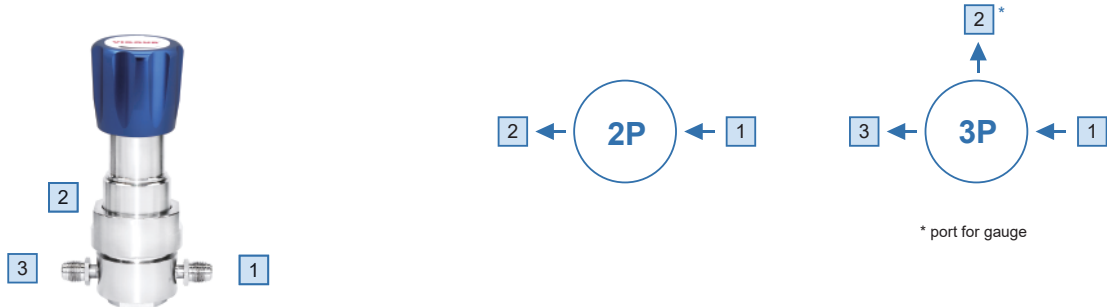
Type:	single-stage
Inlet pressure P1:	max. 6000 psig
Outlet pressure P2:	100~2500 psig
Surface finish:	10µin. Ra (25µin. Ra optional)
Materials	
Body:	see ordering info
Valve seat:	PCTFE (Vespel® optional)
Diaphragm:	Hastelloy® C276
Inlets and Outlets:	1/4" VFS fitting and tube weld
Bonnet port:	1/8" NPT (on panel mount option, bonnet port is not threaded)
Temperature range:	0°F to +140°F (-18°C to +60°C)
Leak rate:	Bubble tight
Flow capacity:	Cv=0.09 (Cv=0.15 optional)
Supply pressure effect:	0.35 psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.09 0.5psig rise in delivery pressure per 100 psig source pressure drop @Cv=0.15
Weight:	approx. 1.8kg

Flowchart



High Pressure Regulators VSR-930UB Series

Ordering Information



Inlet/outlet Connection

FV4: 1/4" VFS female

MV4: 1/4" VFS male

IFV4: 1/4" (gauge female threaded connection
machined on the body)

TW4: 1/4" tube weld

P: gauge (1/4" VFS fitting)

IP: gauge (IFV4 fitting)

* Other connection standard, consult factory

Port Selection

VSR - 930UBPS - 400 - 170 - 4P - 1 - 2 - 3 - 4 - HF - VS - X

Installation

None: bottom mount

P: panel mount *

* Panel hole Φ36mm

Materials

S: 316L

Inlet Pressure

400: 5800 psig

Port Config

2P: 2 ports

3P: 3 ports

Outlet Pressure

170: 100 ~ 2500 psig

Option

None: No self-relieving pressure

X: Include self-relieving pressure

Valve seat Option

None: PCTFE

VS: Vespel®

Cv Option

None: Cv=0.09

HF: Cv=0.15

Ordering Example

VSR - 930UBS - 400 - 170 - FV4 - P - FV4

1 - 2 - 3



Diaphragm Valves

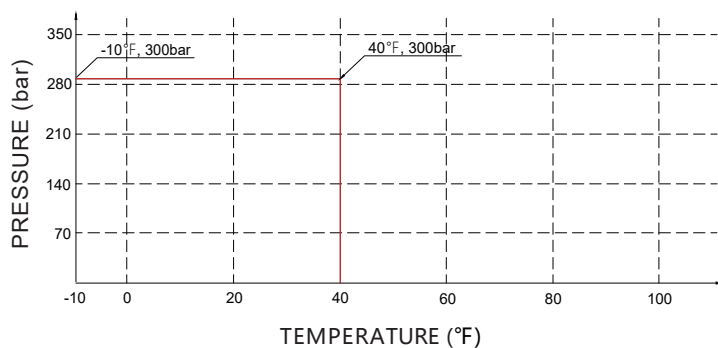
VDV31UA Series

Product Feature

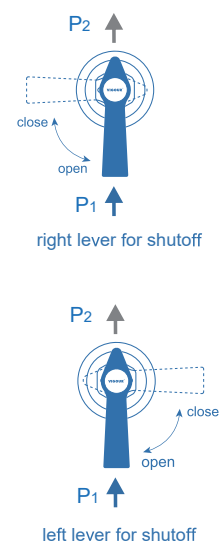
- Diaphragm valve
- Stainless steel 316L body for corrosive gases
- Inlet pressure max 300 bar
- Left or Right lever direction for Shutoff
- Wide range of inlets and outlets
- Metal-to-metal seal to atmosphere



Temperature / Pressure Rating



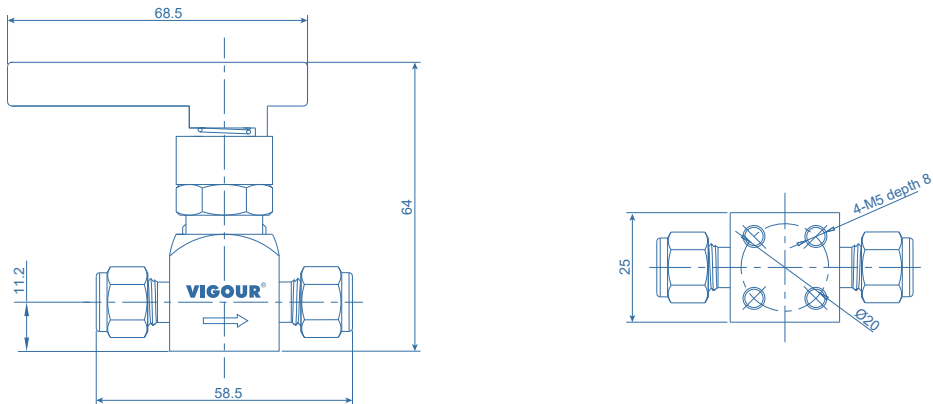
Schematic Drawing



Technical Data

Max. Working Pressure:	4500 psig (300 bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Materials	
Body:	316L
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	Cv=0.1
Orifice:	Φ2.7mm
Weight:	approx. 0.25kg

Dimensions (mm)



Ordering Information

VDV31UAS - 04 - 04 - L

Materials

S: 316L

Inlets / Outlets

02: 1/8" tube fitting

04: 1/4" tube fitting

6M: 6mm tube fitting

8M: 8mm tube fitting

Lever

None: right lever for shutoff

L: left lever for shutoff

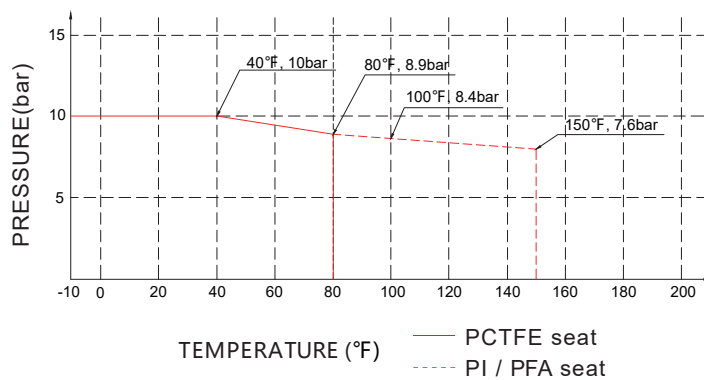
Diaphragm Valves

VDV32UA Series

Product Feature

- Suitable for high purity, flammable or toxic fluid gases
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed option is easily visible at a glance
- Excellent gas displacement characteristics
- Standard seat material is PCTFE, Ployimede/PFA is option

Temperature / Pressure Rating



1/4 Type



1/4 Type



1/2 Type



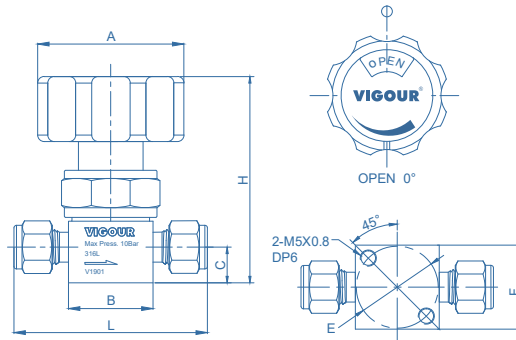
1/2 Type

Technical Data

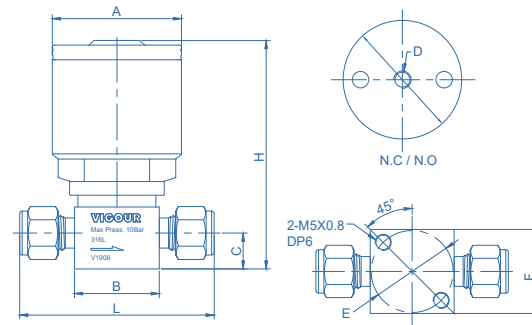
Max. Working Pressure:	150 psig (10 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 176°F (-10°C ~ 80°C)
Materials	
Body:	316L
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4"Cv=0.3 3/8"1/2"Cv=0.65
Weight:	approx. 0.27kg (actuator not included)

Diaphragm Valves VDV32UA Series

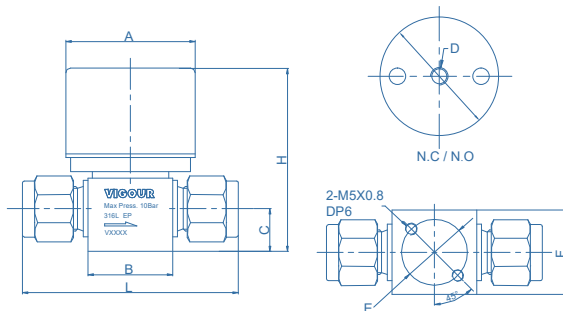
Dimensions (mm)



1/4, 3/8, 1/2 manual actuator



1/4 pneumatic actuator



3/8, 1/2 pneumatic actuator

manual actuator

End Conections	Orifice (mm)	Dimensions (mm)							
		A	B	C	E	F	L	H	
1/4" Tube Fitting	4.4	Φ45	26	11	Φ25.4	26	60	64	
3/8" Tube Fitting	7	Φ45	36	18.2	Φ28	36	78.8	78	
1/2" Tube Fitting	7	Φ45	36	18.2	Φ28	36	83.6	78	

pneumatic actuator, normally opened / normally closed

End Conections	Actuator	Orifice (mm)	Dimensions (mm)							
			A	B	C	D	E	F	L	H
1/4" Tube Fitting	N.C / N.O	4.4	Φ39.6	26	11	M5x0.8	Φ25.4	26	60	70
3/8" Tube Fitting	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	78.8	78
1/2" Tube Fitting	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	83.6	78

1/4", 3/8", 1/2" tube fitting dimensions for reference, other conections please contact factory.

Ordering information

VDV32UAS - M - 04 - 04 - PA

Materials

S: 316L

Actuator

M: manual actuator

PO: pneumatic actuator, normally opened

PC: pneumatic actuator, normally closed

Valve Seat Option

None: PCTFE (standard)

VS: Vespel®

PA: PFA

End Connection

04: 1/4" tube fitting

06: 3/8" tube fitting

08: 1/2" tube fitting

* Other connection standard,consult factory

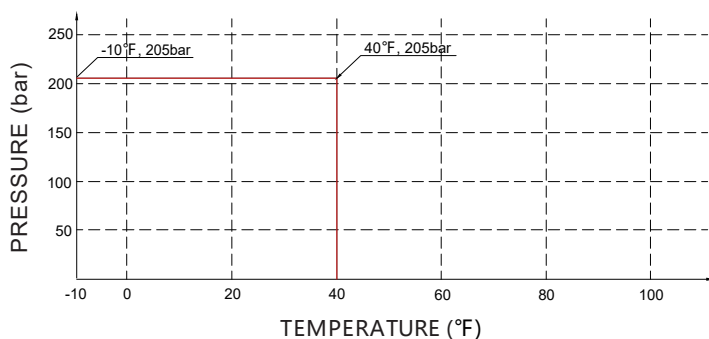
Diaphragm Valves

VDV33UA Series

Product Feature

- Suitable for high purity, flammable or toxic gases
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed position is easily visible at a glance
- Excellent gas displacement characteristics
- Standard seat material is PCTFE, Polyimide/PFA is option

Temperature / Pressure Rating



Technical Data

Max. Working Pressure:	3000 psig (206 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Materials	
Body:	316L
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4"Cv=0.1 3/8"1/2"Cv=0.5
Weight:	approx. 0.27kg (actuator not included)



1/4 Type



1/4 Type



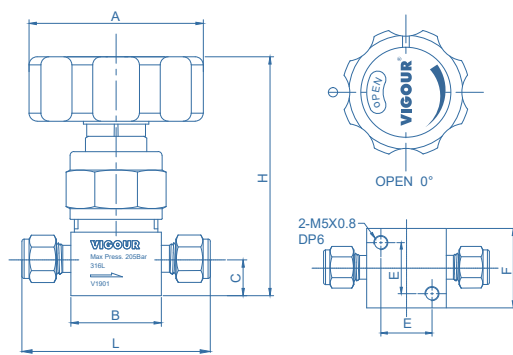
1/2 Type



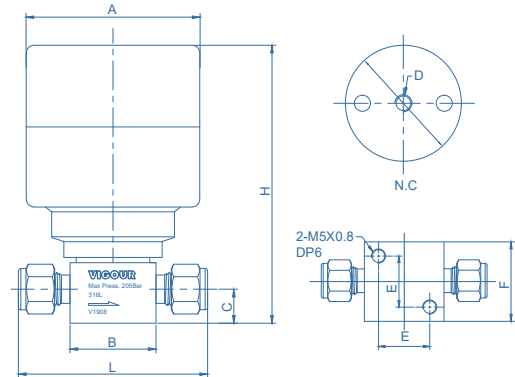
1/2 Type

Diaphragm Valves VDV33UA Series

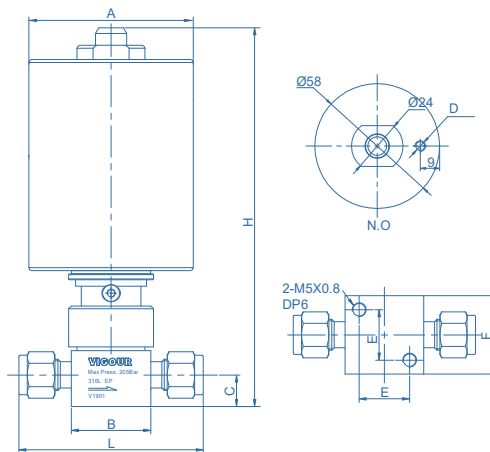
Dimensions (mm)



1/4, 3/8, 1/2 manual actuator



1/4, 3/8, 1/2 pneumatic actuator (N.C.)



1/4 pneumatic actuator (N.O.)

manual actuator

End Conections	Orifice (mm)	Dimensions (mm)						
		A	B	C	E	F	L	H
1/4" Tube Fitting	4.4	Φ54	28	11.1	18	28	65	74
3/8" Tube Fitting	7	Φ54	42	18.2	27	38	84.8	86
1/2" Tube Fitting	7	Φ54	42	18.2	27	38	89.6	86

pneumatic actuator, normally opened / normally closed

End Conections	Actuator	Orifice (mm)	Dimensions (mm)						
			A	B	C	D	E	F	H
1/4" Tube Fitting	N.C	4.4	Φ56.5	28	11.1	M5x0.8	18	28	90.5
1/4" Tube Fitting	N.O	4.4	Φ58	28	11.1	M5x0.8	18	28	65
3/8" Tube Fitting	N.C	7	Φ56.5	42	18.2	RC 1/8	27	38	84.8
1/2" Tube Fitting	N.C	7	Φ56.5	42	18.2	M5x0.8	27	38	89.6

1/4", 3/8", 1/2" tube fitting dimensions for reference, other conections please contact factory.

Ordering Information

VDV33UAS - M - 04 - 04 - PA

Materials

S: 316L

Actuator

M: manual actuator

PO: pneumatic actuator, normally opened *

PC: pneumatic actuator, normally closed

*Normally opened available with connetion size 1/4 thch.

Valve Seat Option

None: PCTFE (standard)

PA: PFA

VS: Vespel®

End Connection

F4: 1/4" NPT(F)

04: 1/4" tube fitting

06: 3/8" tube fitting

08: 1/2" tube fitting

* Other connection standard, consult factory

Diaphragm Valves

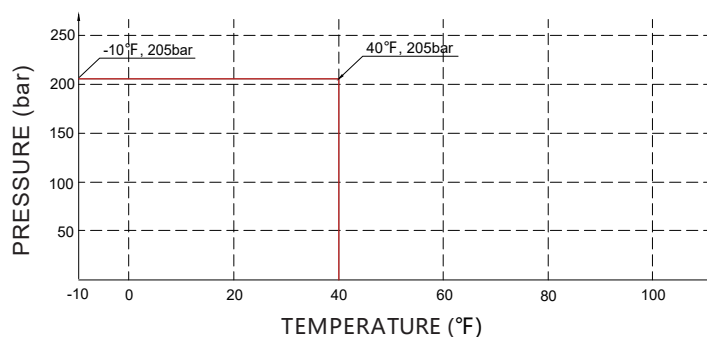
VDV31UB Series

Product Feature

- Quarter-turn ON/OFF, providing easy operation
- Handle shape provides visual indication of OPEN and CLOSE position
- Available on high and low-pressure models



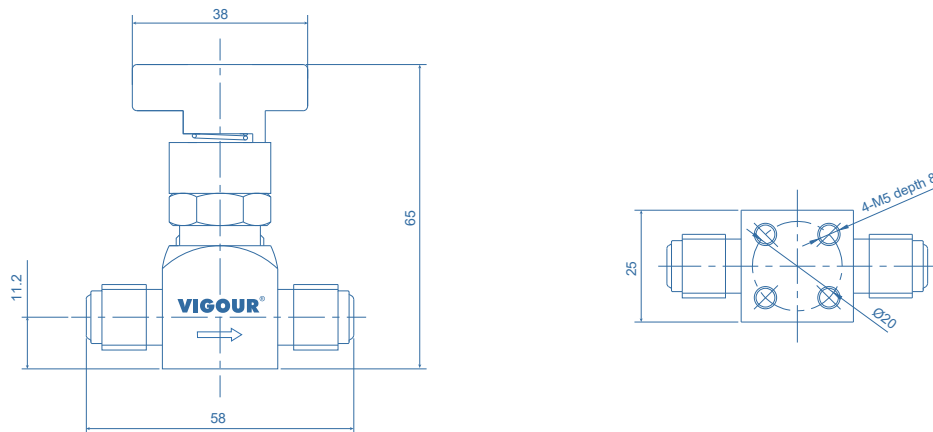
Temperature / Pressure Rating



Technical Data

Max. Working Pressure:	3000 psig (206 bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Materials	
Body:	316L secondary remelt
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	Cv=0.1
Orifice:	Φ4.0mm
Weight:	approx. 0.25kg

Dimensions (mm)



Ordering Information

VDV31UBS - MV4 - MV4

Materials

S: 316L
SLV: 316L secondary remelt

End Connection

MV4: 1/4" VFS male

* Other connection standard, consult factory

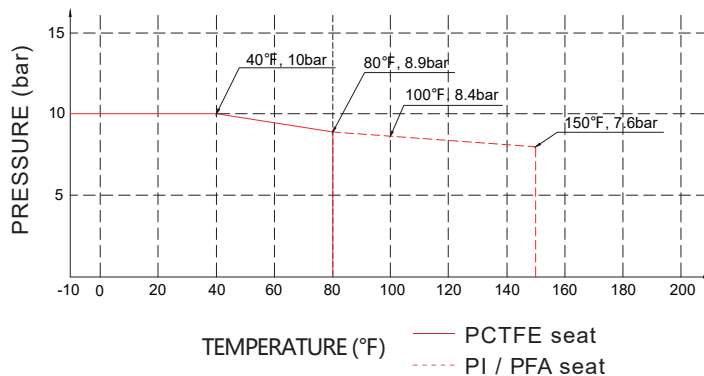
Diaphragm Valves

VDV32UB Series

Product Feature

- Suitable for ultra pure, flammable or toxic fluid lines in semiconductor manufacturing equipment and facilities
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed position is easily visible at a glance
- Excellent gas displacement characteristics
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide/PFA is option

Temperature / Pressure Rating



Technical Data

Max. Working Pressure:	150 psig (10 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 176°F (-10°C ~ 80°C)
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4" Cv=0.3 3/8" 1/2" Cv=0.65
Weight:	approx. 0.27kg (actuator not included)



1/4 Type



1/4 Type



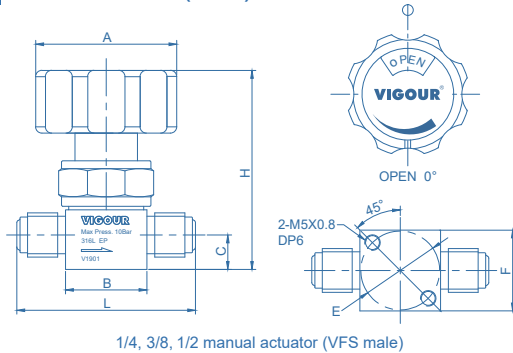
1/2 Type



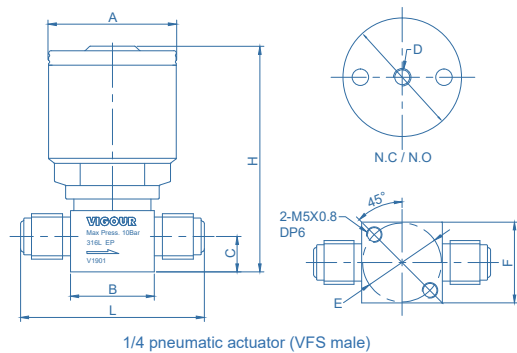
1/2 Type

Diaphragm Valves VDV32UB Series

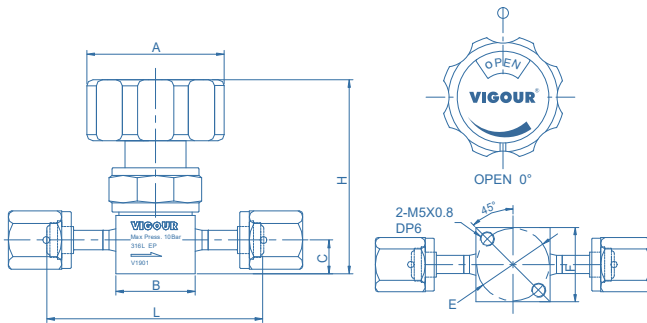
Dimensions (mm)



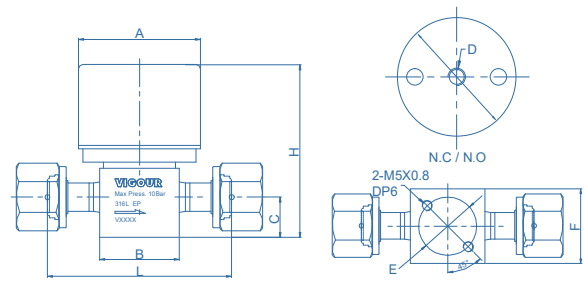
1/4, 3/8, 1/2 manual actuator (VFS male)



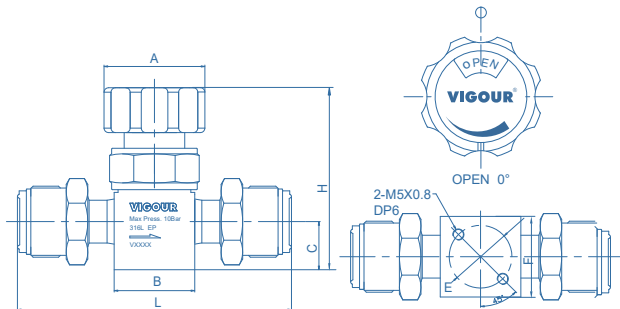
1/4 pneumatic actuator (VFS male)



1/4, 1/2, 3/4 manual actuator (VFS female)



1/2 pneumatic actuator (VFS female)



3/4 manual actuator (VFS male)

manual actuator

End Connections	Orifice (mm)	Dimensions (mm)							
		A	B	C	E	F	L	H	
1/4" VFS male	4.4	Φ45	26	11	Φ25.4	26	57	64	
1/4" VFS female	4.4	Φ45	26	11	Φ25.4	26	71	64	
3/8" VFS male	7	Φ45	36	18.2	Φ28	36	77	78	
1/2" VFS male	7	Φ45	36	18.2	Φ28	36	77	78	
1/2" VFS female	7	Φ45	36	18.2	Φ28	36	83	78	
3/4" VFS male	7	Φ45	36	21.5	Φ28	36	122.3	82	
3/4" VFS female	7	Φ45	36	21.5	Φ28	36	106.3	82	

pneumatic actuator, normally opened / normally closed

End Connections	Actuator	Orifice (mm)	Dimensions (mm)							
			A	B	C	D	E	F	L	H
1/4" VFS male	N.C / N.O	4.4	Φ39.6	26	11	M5x0.8	Φ25.4	26	57	70
1/4" VFS female	N.C / N.O	4.4	Φ39.6	26	11	M5x0.8	Φ25.4	26	71	70
3/8" VFS male	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	77	78
1/2" VFS male	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	77	78
1/2" VFS female	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	83	78

Ordering information

VDV32UBS - M - A - MV4 - MV4 - PA — Valve Seat Option

None: PCTFE(standard)

VS: Vespel®

PA: PFA

Materials

S: 316L

SLV: 316L secondary remelt

Actuator

M: manual actuator

PO: pneumatic actuator, normally opened

PC: pneumatic actuator, normally closed

Flow Circuit Diagram

For details, please visit the attached table P54: flow circuit diagram.

End Connection

MV4: 1/4" VFS male

FV4: 1/4" VFS female

TW4: 1/4" tube weld

MV6: 1/2" VFS male 3/8" O.D.

FV6: 1/2" VFS female 3/8" O.D.

TW6: 3/8" tube weld

MV8: 1/2" VFS male

FV8: 1/2" VFS female

TW8: 1/2" tube weld

MV12: 3/4" VFS male

* Other connection standard, consult factory

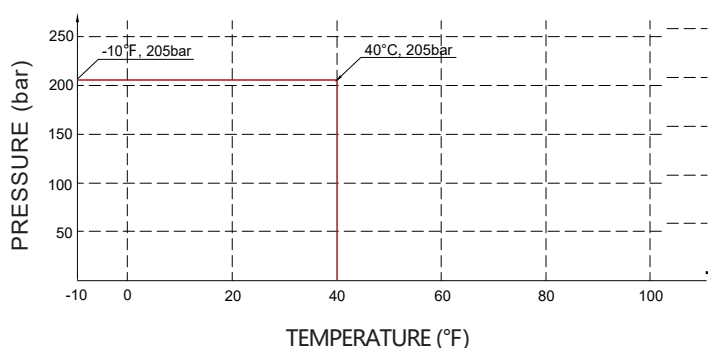
Diaphragm Valves

VDV33UB Series

Product Feature

- Suitable for ultra pure, flammable or toxic fluid lines in semiconductor manufacturing equipment and facilities
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed option is easily visible at a glance
- Excellent gas displacement characteristics
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide/PFA is option

Temperature / Pressure Rating



Technical Data

Max. Working Pressure:	3000 psig (206 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4" Cv=0.1 3/8" 1/2" Cv=0.5
Weight:	approx. 0.27kg (actuator not included)



1/4 Type



1/4 Type

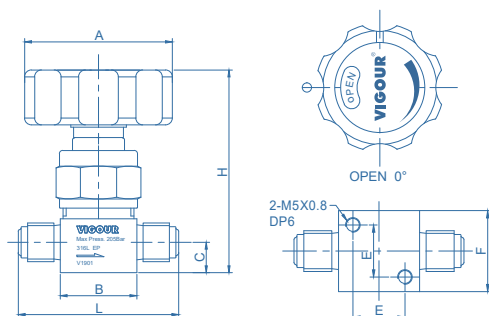


1/2 Type

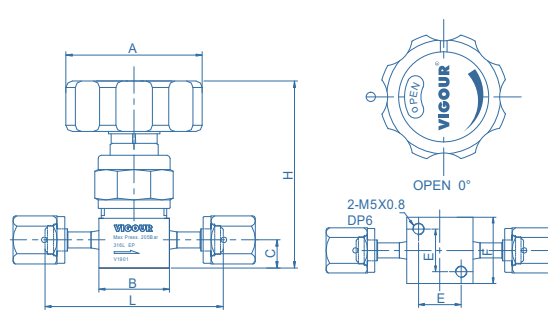


1/2 Type

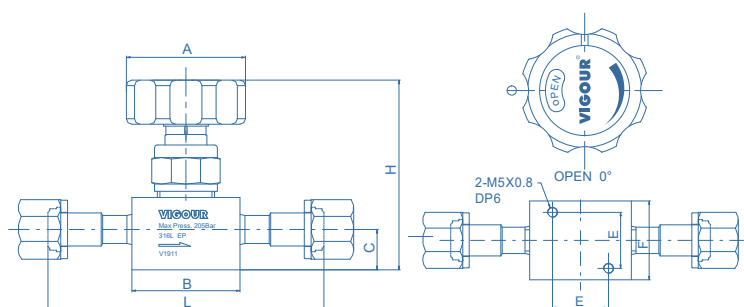
Dimensions (mm)



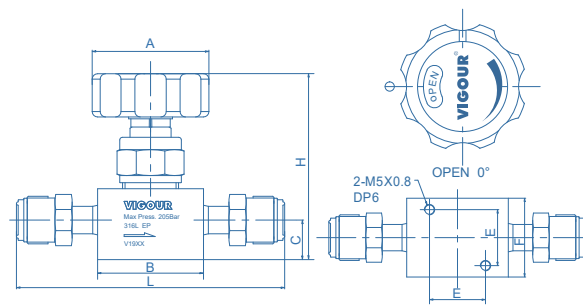
1/4 manual actuator (VFS male)



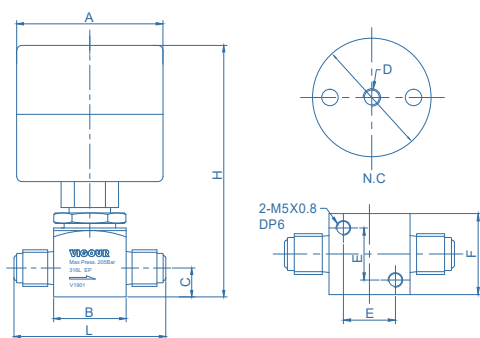
1/4 manual actuator (VFS female)



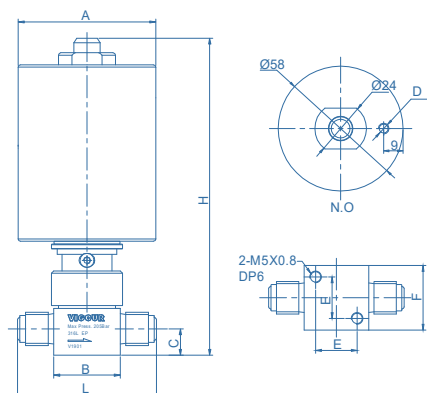
1/2 manual actuator (VFS female)



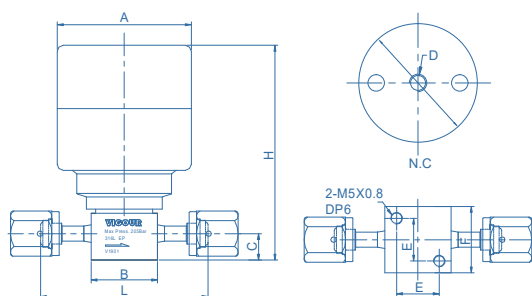
3/8, 1/2 manual actuator (VFS male)



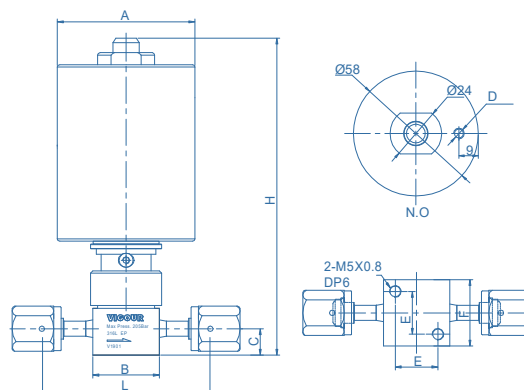
1/4 pneumatic actuator N.C (VFS male)



1/4 pneumatic actuator N.O (VFS male)



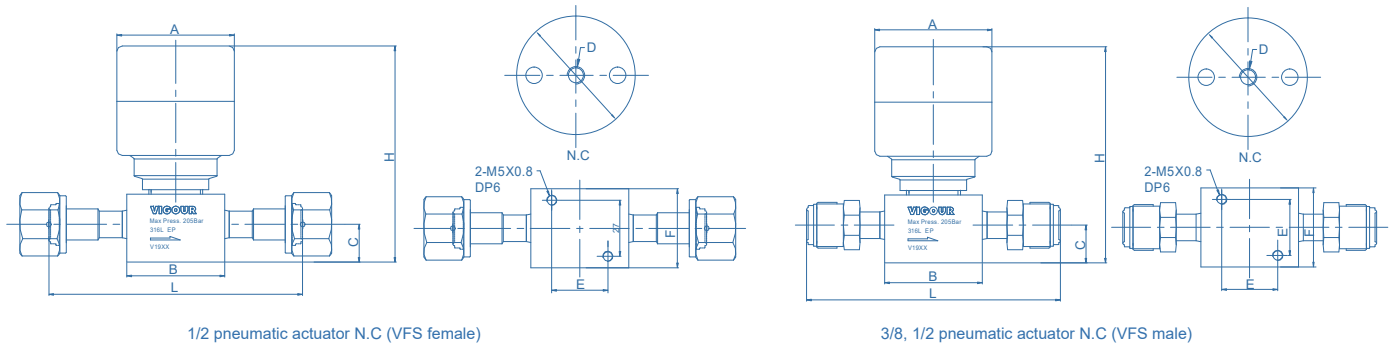
1/4 pneumatic actuator N.C (VFS female)



1/4 pneumatic actuator N.O (VFS female)

Diaphragm Valves

VDV33UB Series



manual actuator

End Conections	Orifice (mm)	Dimensions (mm)						
		A	B	C	E	F	L	H
1/4" VFS male	4.4	Φ54	28	11.1	18	28	58.6	74
1/4" VFS female	4.4	Φ54	28	11.1	18	28	71.6	74
3/8" VFS male	7	Φ54	47.1	18.2	27	38	123.2	86
1/2" VFS male	7	Φ54	47.1	18.2	27	38	123.2	86
1/2" VFS female	7	Φ54	47.1	18.2	27	38	123.2	86

pneumatic actuator, normally opened / normally closed

End Conections	Actuator	Orifice (mm)	Dimensions (mm)						
			A	B	C	D	E	F	H
1/4" VFS male	N.C	4.4	Φ56.5	28	11.1	M5x0.8	18	28	58.6
1/4" VFS male	N.O	4.4	Φ58	28	11.1	M5x0.8	18	28	58.6
1/4" VFS female	N.C	4.4	Φ56.5	28	11.1	M5x0.8	18	28	71.6
1/4" VFS female	N.O	4.4	Φ58	28	11.1	M5x0.8	18	28	71.6
3/8" VFS male	N.C	7	Φ56.5	47.1	18.2	M5x0.8	27	38	123.2
1/2" VFS male	N.C	7	Φ56.5	47.1	18.2	M5x0.8	27	38	123.2
1/2" VFS female	N.C	7	Φ56.5	47.1	18.2	M5x0.8	27	38	123.2

1/4", 3/8", 1/2" VFS fitting dimensions for reference, other connections please contact factory.

Ordering Information

VDV33UBS - M - A - MV4 - MV4 - PA

Materials

S: 316L
SLV: 316L secondary remelt

Actuator

M: manual actuator
PO: pneumatic actuator, normally opened *
PC: pneumatic actuator, normally closed

* Normally opened available with connetion size 1/4 thch.

Flow Circuit Diagram

For details, please visit the attached table P54: flow circuit diagram.

Valve Seat Option

None: PCTFE(standard)
VS: Vespel®
PA: PFA

End Connection

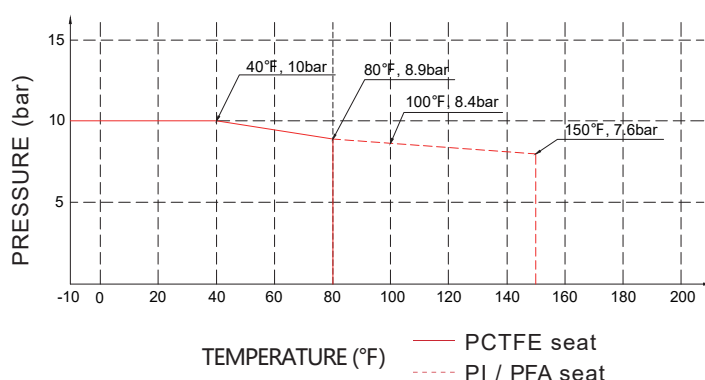
MV4: 1/4" VFS male
FV4: 1/4" VFS female
TW4: 1/4" tube weld
MV6: 1/2" VFS male 3/8" O.D.
FV6: 1/2" VFS female 3/8" O.D.
TW6: 3/8" tube weld
MV8: 1/2" VFS male
FV8: 1/2" VFS female
TW8: 1/2" tube weld

* Other connection standard, consult factory

Product Feature

- Suitable for ultra pure, flammable or toxic fluid lines in semiconductor manufacturing equipment and facilities
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed position is easily visible at a glance
- Excellent gas displacement characteristics
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide/PFA is option

Temperature / Pressure Rating



Technical Data

Max. Working Pressure:	300 psig (20 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 176°F (-10°C ~ 80°C)
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4"Cv=0.3 3/8"1/2"Cv=0.65
Weight:	approx. 0.27kg (actuator not included)



1/4 Type



1/4 Type



1/2 Type

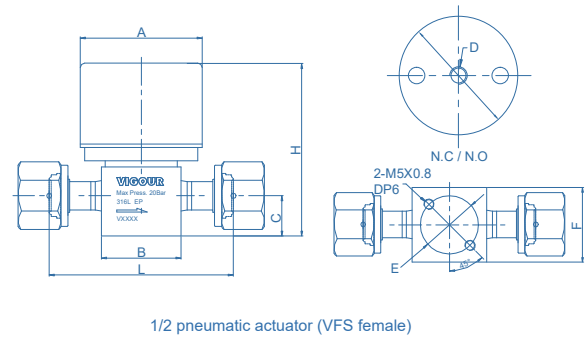
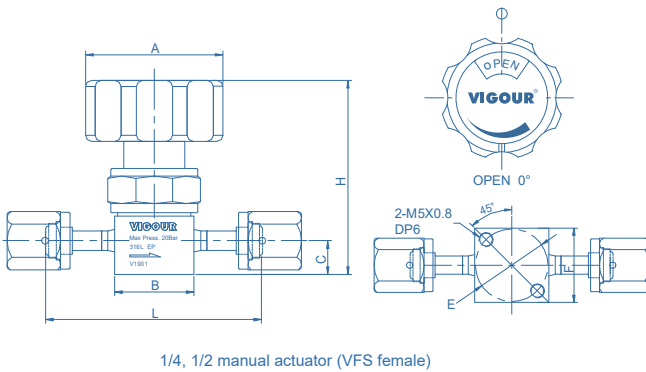
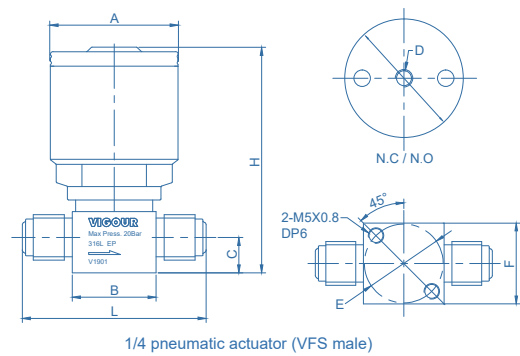
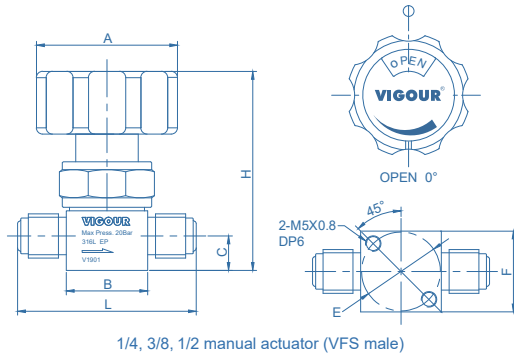


1/2 Type

Diaphragm Valves

VDV52UB Series

Dimensions (mm)



manual actuator

End Connections	Orifice (mm)	Dimensions (mm)						
		A	B	C	E	F	L	H
1/4" VFS male	4.4	Φ45	26	11	Φ25.4	26	57	64
1/4" VFS female	4.4	Φ45	26	11	Φ25.4	26	71	64
3/8" VFS male	7	Φ45	36	18.2	Φ28	36	77	78
1/2" VFS male	7	Φ45	36	18.2	Φ28	36	77	78
1/2" VFS female	7	Φ45	36	18.2	Φ28	36	83	78

pneumatic actuator, normally opened / normally closed

End Conections	Actuator	Orifice (mm)	Dimensions (mm)							
			A	B	C	D	E	F	L	H
1/4" VFS male	N.C / N.O	4.4	Φ39.6	26	11	M5x0.8	Φ25.4	26	57	70
1/4" VFS female	N.C / N.O	4.4	Φ39.6	26	11	M5x0.8	Φ25.4	26	71	70
3/8" VFS male	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	77	78
1/2" VFS male	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	77	78
1/2" VFS female	N.C / N.O	7	Φ55	36	18.2	RC 1/8	Φ28	36	83	78

Ordering information

VDV52UB S - M - A - MV4 - MV4 - PA

Materials

S: 316L

SLV: 316L secondary remelt

Actuator

M: manual actuator

PO: pneumatic actuator, normally opened

PC: pneumatic actuator, normally closed

Flow Circuit Diagram

For details, please visit the attached table P54: flow circuit diagram.

Valve Seat Option

None: PCTFE(standard)

VS: Vespel®

PA: PFA

End Connection

MV4: 1/4" VFS male

FV4: 1/4" VFS female

TW4: 1/4" tube weld

MV6: 1/2" VFS male 3/8" O.D.

FV6: 1/2" VFS female 3/8" O.D.

TW6: 3/8" tube weld

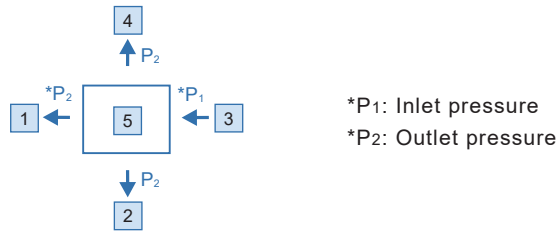
MV8: 1/2" VFS male

FV8: 1/2" VFS female

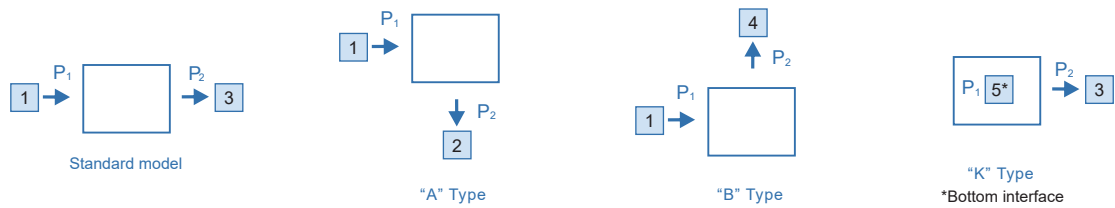
TW8: 1/2" tube weld

* Other connection standard, consult factory

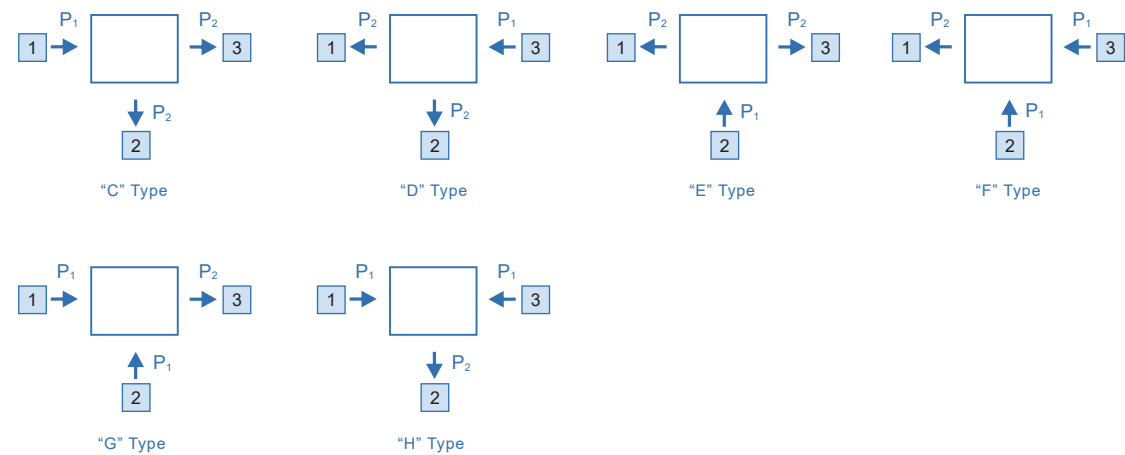
Ports Diagrammatic Drawing:



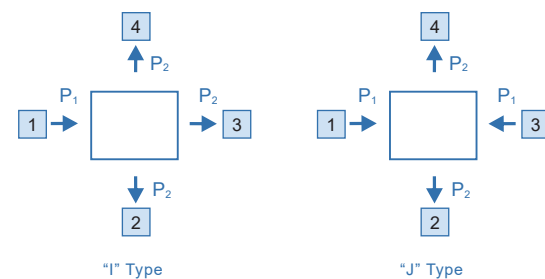
Two ports flow circuit diagram:



Three ports flow circuit diagram:



Four ports flow circuit diagram:



Diaphragm Valves

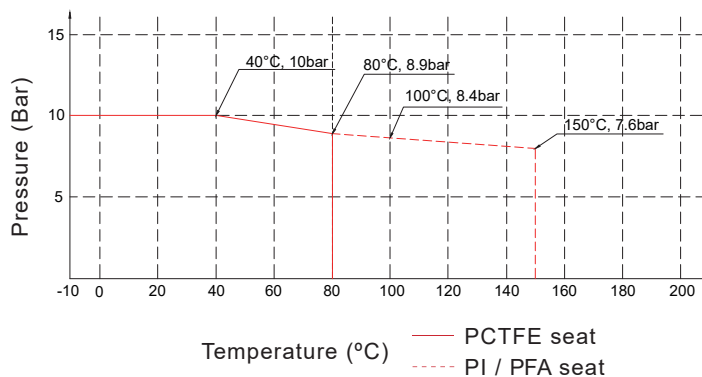
VDV22UB Series

Product Feature

- Suitable for ultra pure, flammable or toxic fluid lines in semiconductor manufacturing equipment and facilities
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed option is easily visible at a glance
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide/PFA is option



Temperature / Pressure Rating

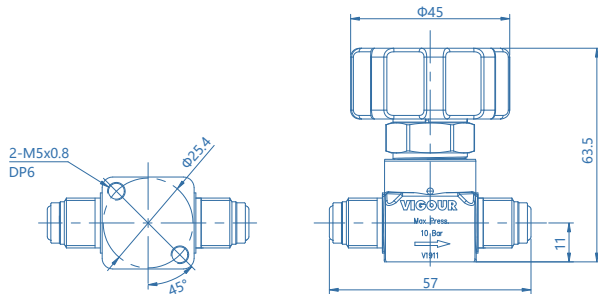


Technical Data

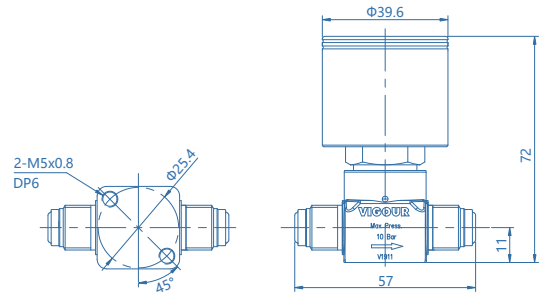
Max. Working Pressure:	150 psig (10 bar)
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 176°F (-10°C ~ 80°C)
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	1/4" Cv=0.3 1/2" Cv=0.65
Weight:	approx. 0.27kg (actuator not included)

Diaphragm Valves VDV22UB Series

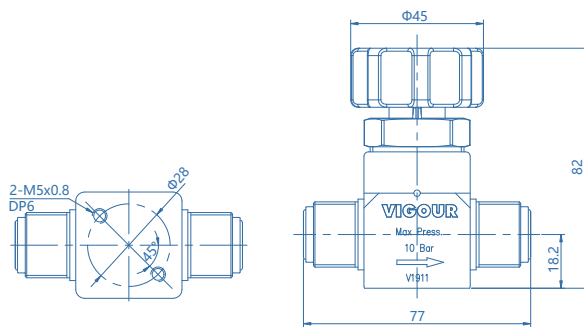
Dimensions (mm)



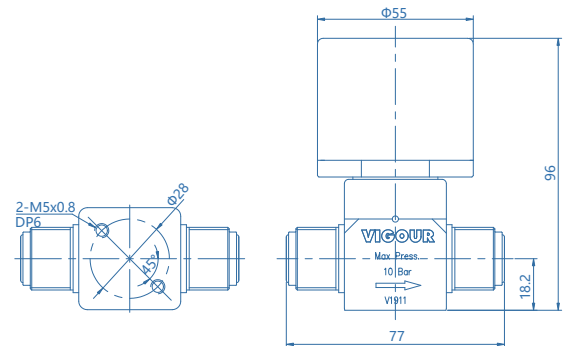
1/4 manual actuator (VFS fitting male)



1/4 pneumatic actuator (VFS fitting male)



1/2 manual actuator (VFS fitting male)



1/2 pneumatic actuator (VFS fitting male)

Ordering information

VDV22UBS - M - MV4 - MV4 - PA

Materials

S: 316L
SLV: 316L secondary remelt

Actuator

M: manual actuator
PO: pneumatic actuator, normally opened
PC: pneumatic actuator, normally closed

Valve Seat Option

None: PCTFE (standard)
VS: Vespel®
PA: PFA

End Connection

MV4: 1/4" VFS fitting male
MV8: 1/2" VFS fitting male

* Other connection standard, consult factory

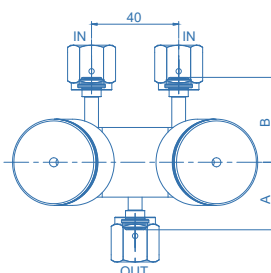
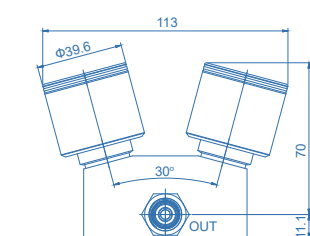
Low-pressure Diaphragm Valve Manifold VDV36UB Series

Product Feature

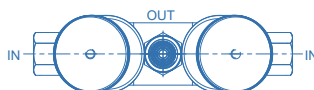
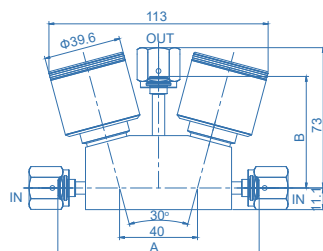
- Excellent degassing characteristics is achieved through minimized flow paths by combining 2 of VDV32、VDV33 diaphragm valves together in one valve body.
- Fewer welds over standard valve alignments
- Reduces space requirements
- Compact tubing arrangement
- Dead space free configuration



Dimensions (mm)



End Connections	Dimensions (mm)	
	A	B
VFS Female	31	39
VFS Male	46.3	46.3



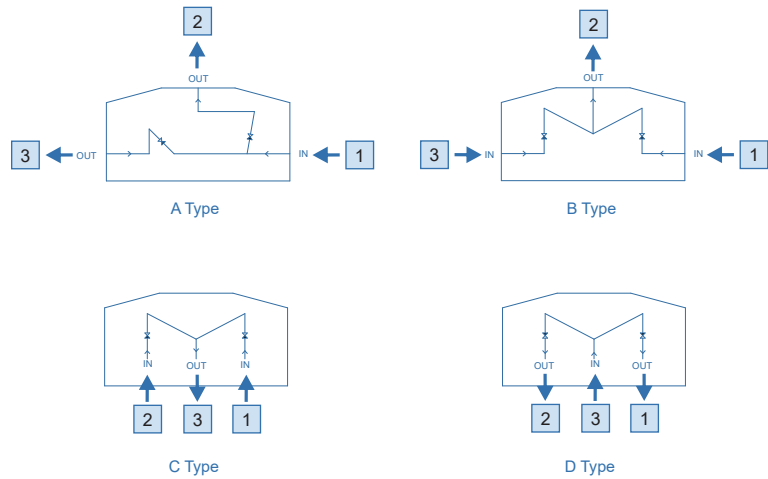
End Connections	Dimensions (mm)	
	A	B
VFS Female	103.4	57.3
VFS Male	139.6	70

Technical Data

Max. Working Pressure:	150 psig (10 bar) 3000 psig (206bar) optional
Pneumatic Operating Pressure:	58~87psig (4-6bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Surface finish:	10μin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy®
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	Cv=0.3 (Low pressure) Cv=0.1 (High pressure)
Weight:	approx. 0.27kg (actuator not included)

Low-pressure Diaphragm Valve Manifold VDV36UB Series

Ordering information



Inlet/Outlet Connection

MV4: 1/4" VFS male
FV4: 1/4" VFS female
TW4: 1/4" tube weld

MV6: 1/2" VFS male 3/8" O.D.
FV6: 1/2" VFS female 3/8" O.D.
TW6: 3/8" tube weld

MV8: 1/2" VFS male
FV8: 1/2" VFS female
TW8: 1/2" tube weld

* Other connection standard, consult factory.

Port Selection

VDV36UB S - A - H - M - PC - 1 - 2 - 3

Materials

S: 316L EP
SLV: 316L secondary remelt

Flow Rate

A: A Type
B: B Type
C: C Type
D: D Type

Working Pressure

None: 150 psig
H: 3000 psig

Valve2 Actuator*

M: manual actuator
PO: pneumatic actuator, normally opened
PC: pneumatic actuator, normally closed

* When the actuators are the same there will be one symbol.

Valve1 Actuator

M: manual actuator
PO: pneumatic actuator, normally opened
PC: pneumatic actuator, normally closed

Ordering Example

Example: VDV36UBS - A - M - PC - FV4 - FV4 - FV4

1 - 2 - 3



Diaphragm Valves

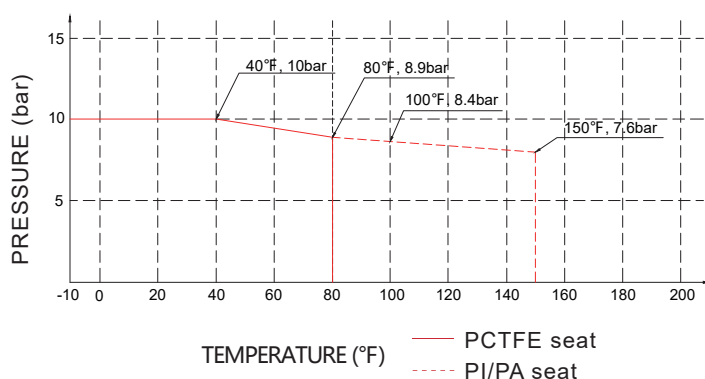
VDV39 Series

Product Feature

- Suitable for ultra pure, flammable or toxic fluid lines in semiconductor manufacturing equipment and facilities
- Direct diaphragm construction with superior sealing performance, remarkable durability, compactness and particle and dead-space-free performance
- Valve open and closed option is easily visible at a glance
- Excellent gas displacement characteristics
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide is option



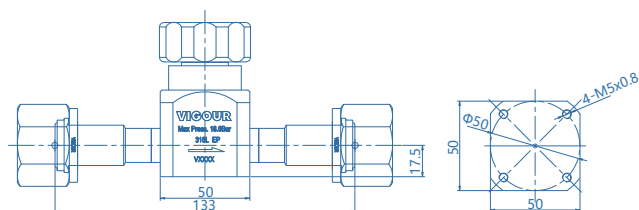
Temperature / Pressure Rating



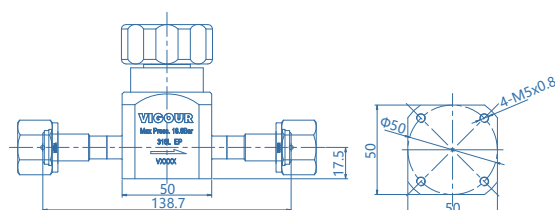
Technical Data

Max. Working Pressure:	270 psig (18.6 bar)
Max. Working Temp.:	14°F ~ 104°F (-10°C ~ 40°C)
Surface finish:	10µin. Ra
Materials	
Body:	see ordering info
Diaphragm:	Elgiloy® (316L optional)
Seat packing:	PCTFE (PFA / VESPEL optional)
Handle:	AL
Internal Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	1x10 ⁻⁹ mbar l/s He
Flow capacity:	Cv=2.8
Weight:	approx. 1.0kg (actuator not included)

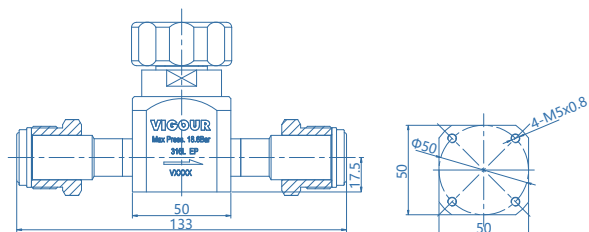
Dimensions (mm)



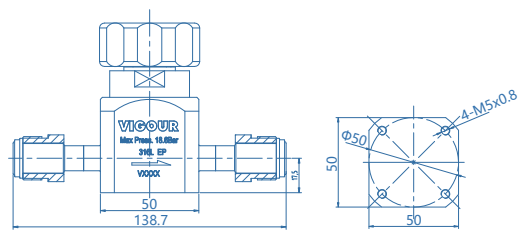
3/4 manual actuator (VFS female)



1/2 manual actuator (VFS female)



3/4 manual actuator (VFS male)



1/2 manual actuator (VFS male)

Ordering Information

VDV39S - M - MV8 - MV8 - PA

Materials

S: 316L
SLV: 316L secondary remelt

Actuator

M: manual actuator

Valve Seat Option

None: PCTFE (standard)
VS: Vespel®
PA: PFA

End Connection

FV12: 3/4" VFS (F)
MV12: 3/4" VFS (M)
TW12: 3/4" tube weld
FV8: 1/2" VFS (F)
MV8: 1/2" VFS (M)
TW8: 1/2" tube weld

* Other connection standard, consult factory

Vacuum Generators

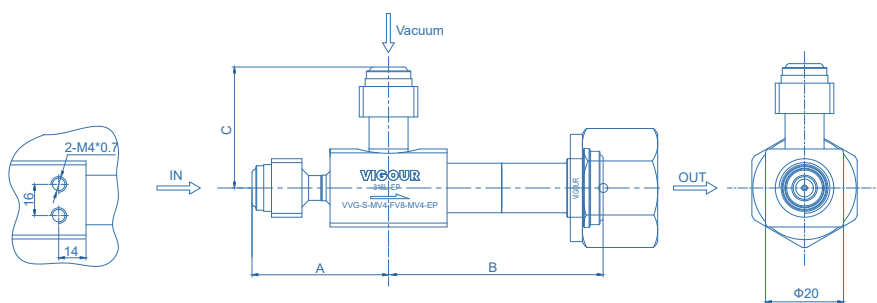
VVG Series

Product Feature

- Max. vacuum pressure: -90kPa
- Stainless steel 316L construction
- MMHG (Torr) vacuum generators
- With a minimum source nitrogen pressure of 90 psig
- 100% helium leak test



Dimensions (mm)

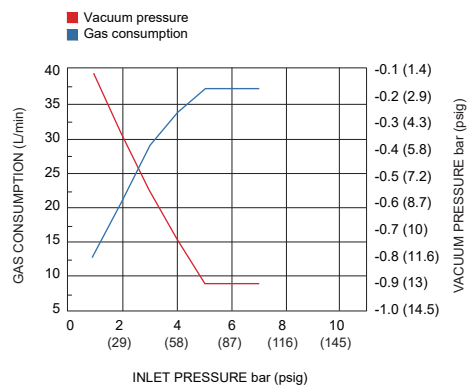


	Connections	mm	inch
A	FV4	32.5	1.27
	MV4	35	1.37
B	FV8	55	2.16
	MV8	64.8	2.55
C	FV4	24	0.94
	MV4	31	1.22

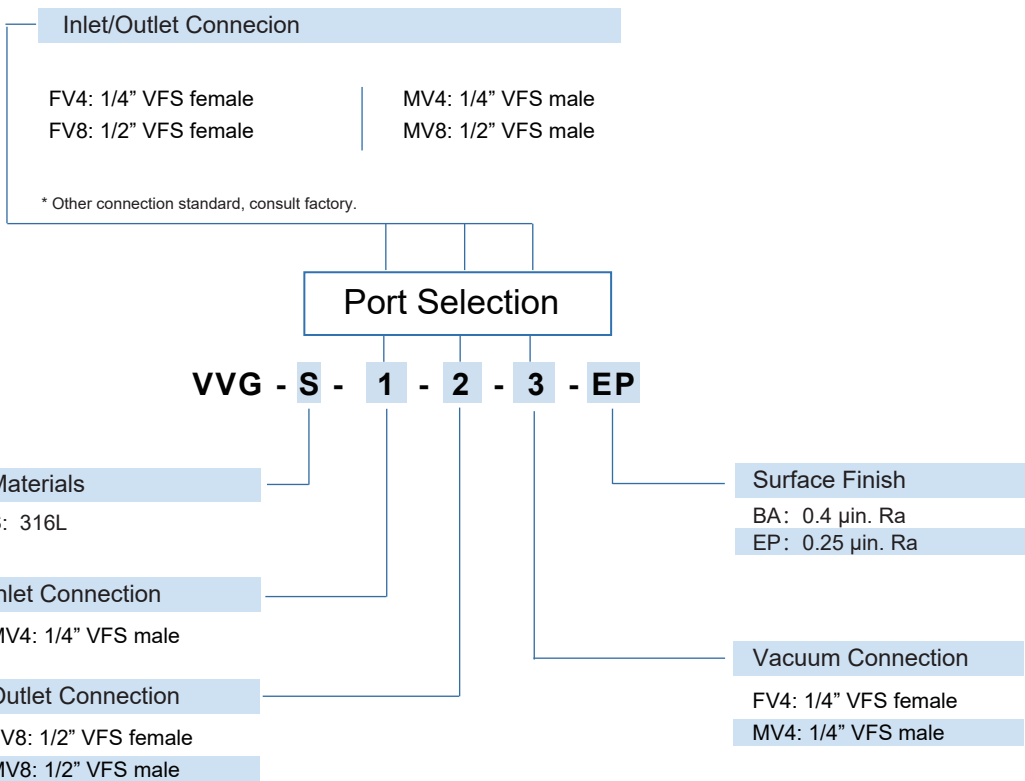
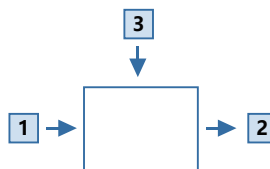
Technical Data

Type:	Vacuum Generators
Max. Vacuum pressure:	-90kPa
Inlet pressure at limiting vacuum pressure:	5 bar
Flow at limiting vacuum pressure:	37L/min
Body Material:	SS 316L
Max. Working pressure:	10 bar
Temperature range:	0~150°C
Source Gas:	Nitrogen

Vacuum and Flow Specification



Ordering Information



Ordering Example

Example: VVG - S - MV4 - FV8 - MV4

1 - 2 - 3



Bellows Valves

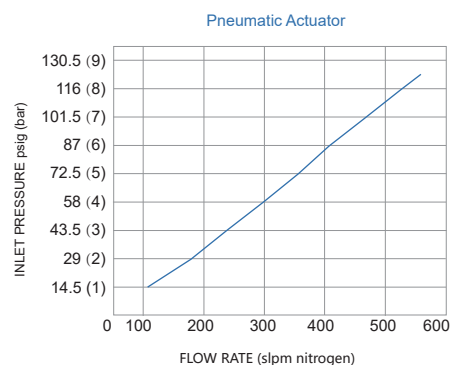
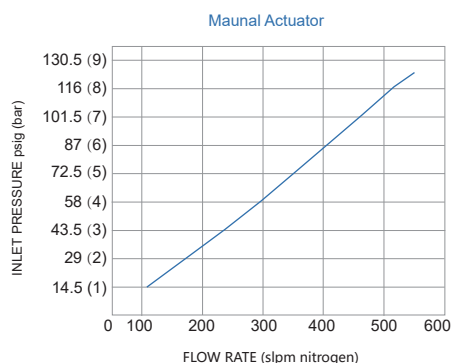
VUBV Series

Product Feature

- 316L stainless steel construction
- Tube fitting, tube welding, and VFS fitting joints
- Easy to clean to keep operation clean
- Excellent gas displacement characteristics
- EP treatment is standard for all wetted surfaces
- Standard seat material is PCTFE, Polyimide is option
- All-metal seal to atmosphere



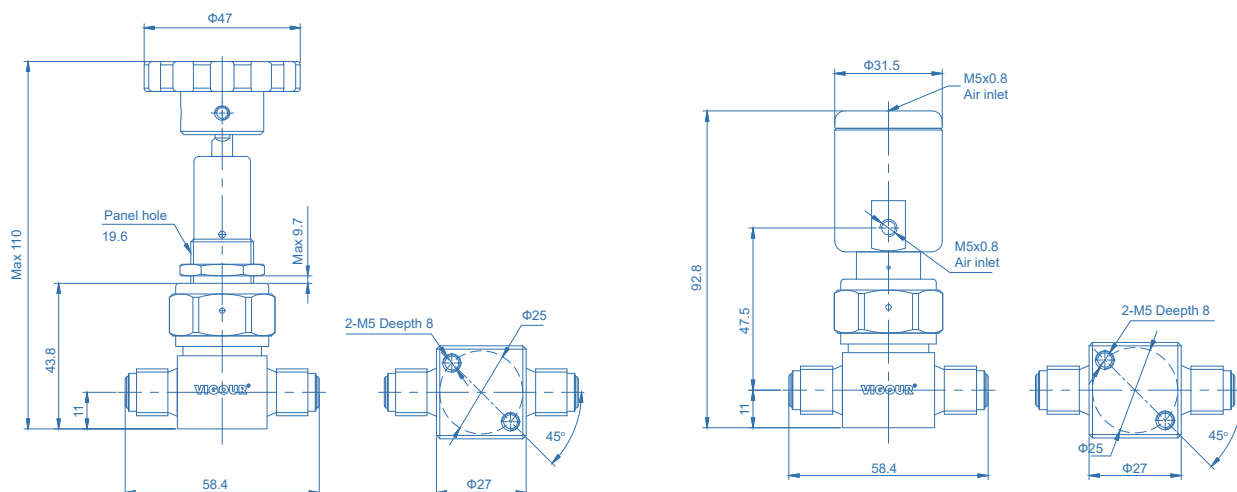
Flowchart



Technical Data

Manual Pressure:	Vacuum 500 psig (35bar)
Pneumatic Pressure:	Vacuum 125 psig (8.6bar)
Operating Pressure:	45~120 psig (3.2~8.2bar)
Surface finish:	10µin. Ra Standard (7µin. Ra / 5µin. Ra optional)
Working Temp.:	-40°F ~ 200°F (-40°C ~ 93°C)
Materials	
Body:	316L
Bellows:	A269 / A240 stainless steel
Seat packing:	PCTFE
Handle:	AL
Internal Leakage Allowance:	4x10 ⁻⁹ mbar l/s He
External Leakage Allowance:	4x10 ⁻⁹ mbar l/s He
Flow capacity:	Cv=0.3
Weight:	approx. 1.54kg (actuator not included)

Dimensions (mm)



Ordering Information

VUBV S - M - MV4 - MV4 - VS

Materials

S: 316L

Actuator

M: manual actuator
PC: pneumatic actuator, normally closed

Valve Seat Option

None: PCTFE (standard)
VS: Vespel®

End Connection

O4: 1/4" tube fitting
TW4: 1/4" tube weld
FV4: 1/4" VFS female
MV4: 1/4" VFS male

* Other connection standard, consult factory

* Tube fitting wetted surface Ra. 20µm machine finished,
TW4, FV4, MV4 wetted surface Ra. 8µm machine finished
and electropolished

Metering Valves

VMV Series

Product Features

- Low pressure metering valves
- Body materials: 316
- Panel installation is possible
- Vernier handles Options
- Straight and Angle flow patterns
- Working pressure: Max. 2000psig (137bar)
- Straight-pattern flow coefficients (Cv) from 0.004 to 0.16

Technical Data

Series	Pressure-Temperature Ratings		Orifice in. (mm)	Shutoff Service	Stem Taper (Included Angle)
	Temperature °C	Working Pressure bar			
A type	-23°C to +204°C (FKM O-rings)	137	0.032 (0.81)	No	1°
B type			0.056 (1.42)	No	3°
C type	-23°C to +148°C (Buna N, O-rings)	68.9 ^①	0.128 (3.25)	Yes ^②	6°

① Downstream pressure 500 psig (34.4 bar) max when valve requires adjustment at pressure due to strength limitations of the fine-pitch threads and high operating torque.

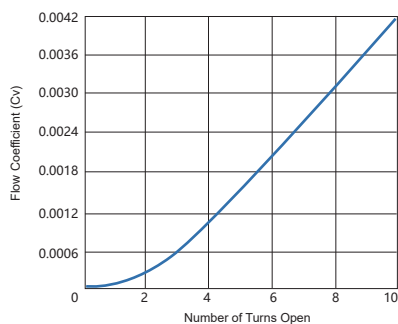
② Stainless steel L series valves are not recommended for shutoff in vacuum or gas service, or for repetitive shutoff in liquid service.



Flow Coefficient at Turns Open

Flow Data at 70°F (20°C)

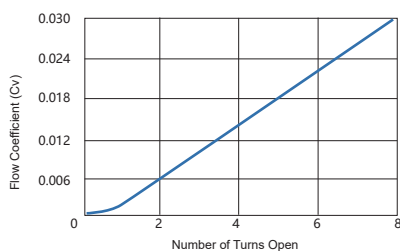
A type Metering Valves



Max. Flow Cv=0.004

Pressure Drop to Atmosphere bar	Air Flow std L/min
0.68	1.1
3.4	2.8
6.8	5.6

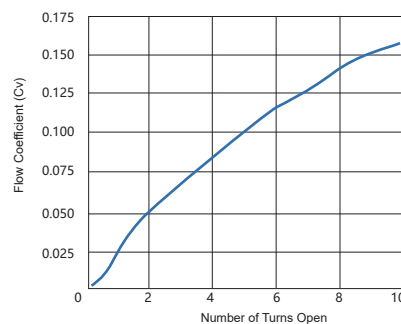
B type Metering Valves



Max. Flow Cv=0.03

Pressure Drop to Atmosphere bar	Air Flow std L/min
0.68	9.3
3.4	25.4
6.8	42.4

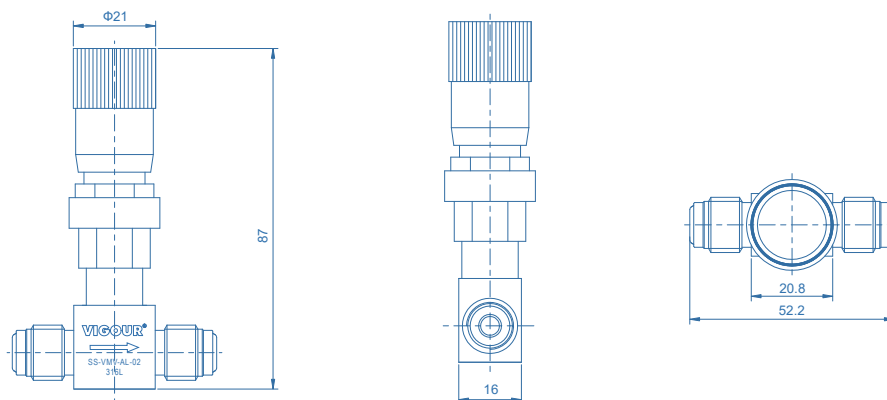
C type Metering Valves



Max. Flow Cv=0.16

Pressure Drop to Atmosphere bar	Air Flow std L/min
0.68	56.6
3.4	181
6.8	323

Dimensions



End Connections		Ordering Number	Dimensions, in. (mm)					
Inlet/Outlet	Size		L	H	H1	H2	E	G
A type (Straight Pattern)								
Tube Fittings	1/16 in.	SS-VMV-A-01	1.56 (39.6)	2.34 (59.4)	0.92 (23.4)	/	0.38 (9.6)	0.45 (11.4)
	1/8 in.	SS-VMV-A-02	1.90 (48.3)					
	1/4 in.	SS-VMV-A-04	2.04 (51.8)					
	3mm	SS-VMV-A-3M	1.90 (48.3)					
	6mm	SS-VMV-A-6M	2.04 (51.8)					
VFS Male	1/4 in.	SS-VMV-A-MV4	2.06 (52.3)					
A type (Angle Pattern)								
Tube Fittings	1/16 in.	SS-VMV-AL-01	0.81 (20.6)	3.22 (81.8)	0.92 (23.4)	0.88 (22.4)	0.38 (9.6)	0.45 (11.4)
	1/8 in.	SS-VMV-AL-02	0.98 (24.9)	3.22 (81.8)		0.98 (24.9)		
	1/4 in.	SS-VMV-AL-04	1.02 (25.9)	3.36 (85.3)		1.02 (25.9)		
	3mm	SS-VMV-AL-3M	0.98 (24.9)	3.32 (84.3)		0.99 (25.1)		
Male NPT / Tube Fittings	1/8 in.	SS-VMV-AL-M2-02	0.98 (24.9)	3.07 (78.0)		0.98 (24.9)		
B type (Straight Pattern)								
Tube Fittings	1/8 in.	SS-VMV-B-02	2.02 (51.3)	2.78 (70.6)	1.56 (39.6)	/	0.50 (12.7)	0.58 (14.7)
	1/4 in.	SS-VMV-B-04	2.20 (55.9)					
	3mm	SS-VMV-B-3M	2.02 (51.3)					
	6mm	SS-VMV-B-6M	2.20 (55.9)					
Male NPT	1/8 in.	SS-VMV-B-M2	1.50 (38.1)					
	1/4 in.	SS-VMV-B-M4	1.96 (49.8)					
Female NPT	1/8 in.	SS-VMV-B-F2	1.94 (49.3)					
VFS Male	1/4 in.	SS-VMV-B-MV4	2.06 (52.3)					
B type (Angle Pattern)								
Tube Fittings	1/8 in.	SS-VMV-BL-02	1.01 (25.7)	3.30 (83.8)	1.07 (27.2)	1.01 (25.7)	0.50 (12.7)	0.58 (14.7)
	1/4 in.	SS-VMV-BL-04	1.10 (27.9)	3.39 (86.1)		1.10 (27.9)		
	3mm	SS-VMV-BL-3M	1.01 (25.7)	3.30 (83.8)		1.01 (25.7)		
	6mm	SS-VMV-BL-6M	1.10 (27.9)	3.39 (86.1)		1.10 (27.9)		
Male NPT	1/8 in.	SS-VMV-BL-M2	0.75 (19.1)	3.04 (77.2)		0.75 (19.1)		
	1/4 in.	SS-VMV-BL-M4	0.98 (24.9)	3.27 (83.1)		1.02 (25.9)		
Male NPT / Tube Fittings	1/8 in.	SS-VMV-BL-M2-02	1.01 (25.7)	3.04 (77.2)		0.75 (19.1)		
Female NPT	1/8 in.	SS-VMV-BL-F2	0.97 (24.6)	3.26 (82.8)		0.97 (24.6)		

Metering Valves

VMV Series

Dimensions

End Connections		Ordering Number	Dimensions, in. (mm)					
Inlet/Outlet	Size		L	H	H1	H2	E	G
C type (Straight Pattern)								
Tube Fittings	1/4 in.	SS-VMV-C-04	2.34 (59.4)	2.82 (71.6)	1.26 (32.0)	/	1.13 (28.7)	0.58 (14.7)
	3/8 in.	SS-VMV-C-06	2.46 (62.5)					
	6mm	SS-VMV-C-6M	2.34 (59.4)					
Male NPT	1/4 in.	SS-VMV-C-M4	2.00 (50.8)					
C type (Angle Pattern)								
Tube Fittings	1/4 in.	SS-VMV-CL-04	1.17 (29.7)	3.77 (95.8)	1.04 (26.4)	1.17 (29.7)	1.13 (28.7)	0.58 (14.7)
	6mm	SS-VMV-CL-6M						

Options and Accessories



Vernier Handle

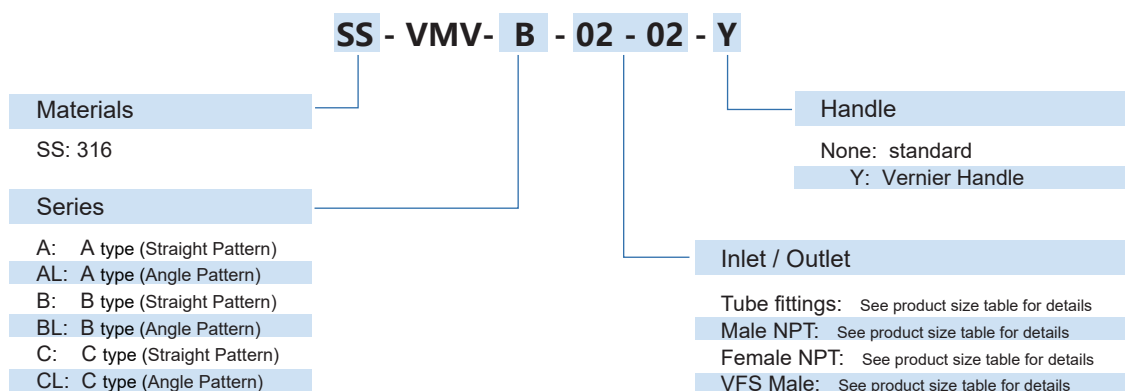
Product Features:

- Helps ensure repeatable flow adjustments.
- Provides readings accurate to 1/25 turn.
- Kits contain all parts necessary to add a vernier handle to an existing valve.

Ordering Example:

SS-VMV-AL-02-Y

Ordering Information



Atomic Layer Deposition Valves

VALD Series

Product Feature

- Ultrahigh cycle life with high-speed actuation
- Normally open and normally closed pneumatic actuation
- Electronic or optical actuator position-sensing option
- Suitable for ultrahigh-purity applications
- Modular surface-mount, tube butt weld, and VFS end connections
- Opening and closing time of less than 5ms
- Fully swept flow path facilities
- Thermal isolation coupling optional



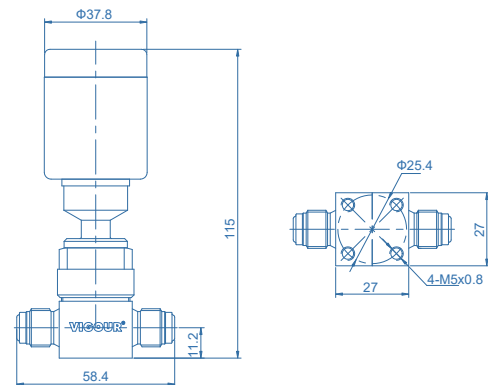
Technical Data

Max. Working Pressure:	150 psig (10bar)
Nominal Diameter:	Φ4.1
Working Temp.:	-9°F ~ 399°F (-23°C ~ 200°C)
	Body Max. Temp 200°C

Materials

Body:	see ordering info
Diaphragm:	Elgiloy®
Seat:	High purity PFA
Flow capacity:	Cv=0.27
Weight:	approx. 1.54kg

Dimensions (mm)



Ordering Information

VALD S - PO - MV4 - MV4

Materials

S: 316L
SLV: 316L secondary remelt

Actuator

PO: pneumatic actuator, normally opened
PC: pneumatic actuator, normally closed

End Connection

TW4: 1/4" tube weld
FV4: 1/4" VFS (F)
MV4: 1/4" VFS (M)

* Other connection standard, consult factory

All-Welded Check Valves

VUCV Series

Product Feature

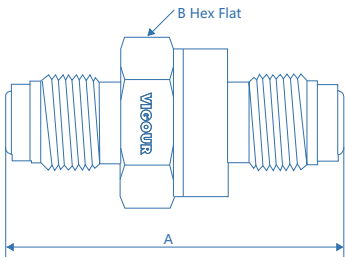
- All-welded design body with minimal dead space
- Cracking pressure less than 2 psig
- 316L SS Materials for ultra high purity grade
- Strong durability as well as corrosion resistance for long cycle life
- Elgiloy® spring material with free noise in the process of useny



Technical Data

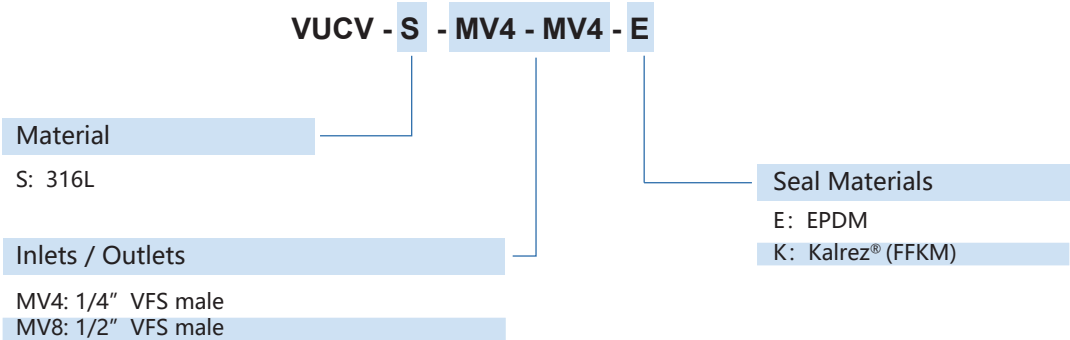
Working Pressure:	3000 psig
Cracking Pressure:	<2 psig
Working Temperature:	-10~80°C
Material	
Body:	SS 316L
Sprting:	Elgiloy®
O-ring:	FKM
Flow Capacity:	Cv=0.55 (1/4")
	Cv=0.70 (1/2")

Dimensions (mm)



End Cornections	Dimensions (mm)	
	A	B
1/4" VFS male	45.7	22
1/2" VFS male	52.5	27

Ordering Information



Product Feature

- Compact check valve
- O-ring Materials: VITON® standard, EPDM optional
- working pressure: Max. 300bar
- Opening pressure: 1/3psi / 1psi
- Inlet/outlet connection: NPT thread / NPT tube fitting



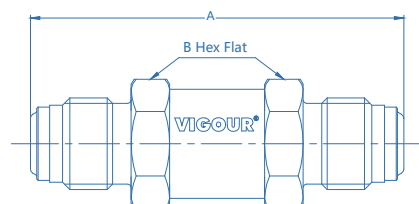
Typical Applications

- Designed for instrument panels and systems
- Hydrogen energy
- High-flow applications

Technical Data

Working pressure:	Max. 300 bar
Opening pressure:	1/3psi / 1psi
Parent material:	see ordering info
Inlet/outlet connection:	see ordering info
O-ring:	VITON® (standard) EPDM (optional)
Leakage rate:	Bubble-tight

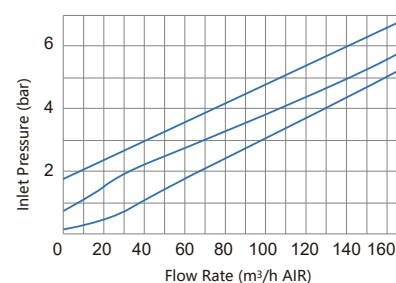
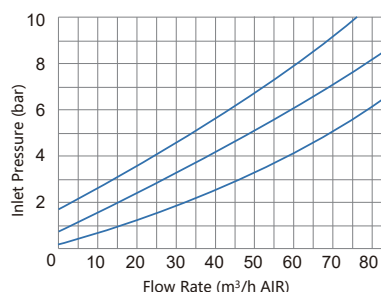
Dimensions (mm)



Ordering Number	Dimensions (mm)	
	A	B
VCVH-S-MV4-MV4	58.2	17.4
VCVH-S-MV8-MV8	68.3	25.4

Flowchart

Minimum open reset pressure		Reset pressure
psi (bar)		
1/3 (0.03)	3 (0.21) under	6 (0.42) under
1 (0.07)	4 (0.28) under	5 (0.35)
5 (0.35)	3~9 (0.21~0.63)	2 (0.14)
10 (0.69)	7~15 (0.49~1.1)	3 (0.21)
25 (1.8)	20~30 (1.4~2.1)	17 (1.21)



Ordering Information

VCVH - S - MV4 - MV4 - E - 1

Materials

S: 316L

Inlet / Outlet Connection

MV4: 1/4" VFS male

MV8: 1/2" VFS male

Opening pressure

1: 1psi

1/3: 1/3 psi

O-ring

None: VITON®

E: EPDM

Gas Stick Assemblies

VUP Series

Product Features

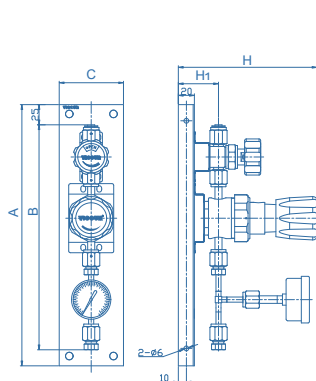
- Ultra high purity gas stick for all gas delivery systems
100TG: ≤30 slpm delivery 1/4" VFS
200TG: ≤300 slpm delivery 3/8" VFS
300TG: ≤600 slpm delivery 1/2" VFS
- High control accuracy
- All connections welded or VFS
- Manual or pneumatic diaphragm valve option
- 100% Helium-leak-tested

Technical Data

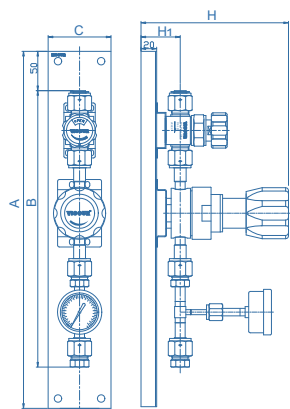
Inlet pressure P1:	300 psig
Outlet pressure P2:	30/60/100/150 psig
Diaphragm valve materials	
body:	316L
Valve seat:	PCTFE
Diaphragm:	Elgiloy®
Regulator materials	
body:	316L / 316L secondary remelt
Valve seat:	PCTFE
Diaphragm:	Hastelloy® C276
Leak rate: (to atmosphere)	1x10 ⁻⁹ mbar l/s He
(via seat)	1x10 ⁻⁸ mbar l/s He



Dimensions (mm)



VUP-100TG (A Type)

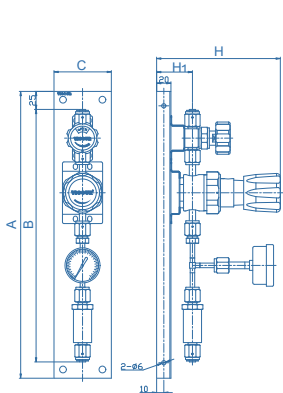


VUP-200TG / VUP-300TG (A Type)

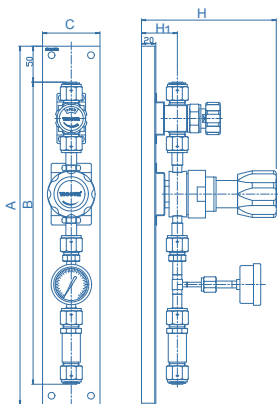
Type	Panel Thickness mm	Ordering Number	Dimensions, mm				
			A	B	C	H	H1
100TG	20	VUP-100TG-A	325	280	80	172.5	50
200TG	20	VUP-200TG-A	455	352.4	80	188	50
300TG	20	VUP-300TG-A	455	349.2	80	188	50

Gas Stick Assemblies

VUP Series

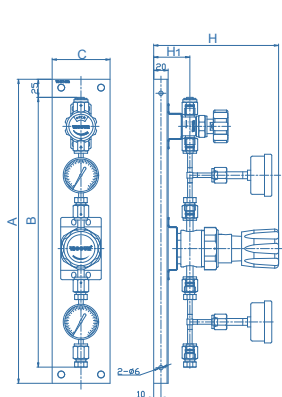


VUP-100TG (B Type)

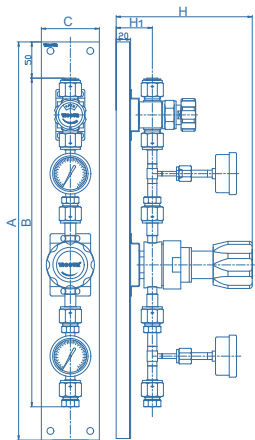


VUP-200TG / VUP-300TG (B Type)

Type	Panel Thickness mm	Ordering Number	Dimensions, mm				
			A	B	C	H	H1
100TG	20	VUP-100TG-B	400	352.3	80	172.5	50
200TG	20	VUP-200TG-B	500	421.4	80	188	50
300TG	20	VUP-300TG-B	500	418.2	80	188	50

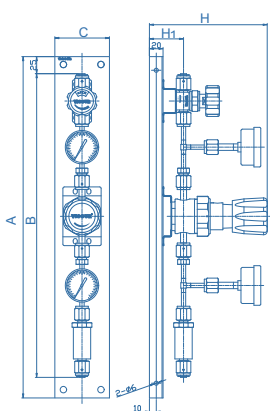


VUP-100TG (C Type)

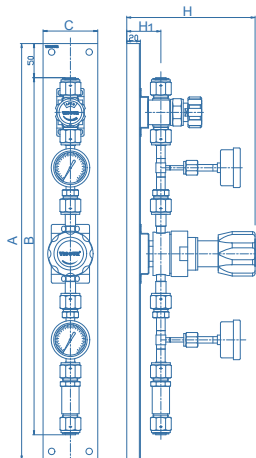


VUP-200TG / VUP-300TG (C Type)

Type	Panel Thickness mm	Ordering Number	Dimensions, mm				
			A	B	C	H	H1
100TG	20	VUP-100TG-C	420	372.6	80	172.5	50
200TG	20	VUP-200TG-C	550	454.1	80	188	50
300TG	20	VUP-300TG-C	550	447.7	80	188	50



VUP-100TG (D Type)



VUP-200TG / VUP-300TG (D Type)

Type	Panel Thickness mm	Ordering Number	Dimensions, mm				
			A	B	C	H	H1
100TG	20	VUP-100TG-D	500	444.9	80	172.5	50
200TG	20	VUP-200TG-D	610	523.1	80	188	50
300TG	20	VUP-300TG-D	610	516.7	80	188	50

Gas Stick Assemblies

VUP Series

Ordering Information

VUP - 100TG - D - 20 - 10 - FV4 - P - P - FV4 - F - PC

Series

100TG: ≤30 slpm delivery 1/4" VFS
 200TG: ≤300 slpm delivery 3/8" VFS
 300TG: ≤600 slpm delivery 1/2" VFS

Type

A: Single guage, No filter included
 B: Single guage, included filter
 C: Dual guage, No filter included
 D: Dual guage, included filter

Inlet Pressure P1

20: 20 bar

Outlet Pressure P2

V1: Vac to 10 psig
 V2: Vac to 30 psig
 V4: Vac to 60 psig
 V7: Vac to 100 psig
 V10: Vac to 150 psig
 1: to 10 psig
 2: to 30 psig
 4: to 60 psig
 7: to 100 psig
 10: to 150 psig

Inlet Valve

None: No inlet valve
 MV4: 1/4" VFS male
 FV4: 1/4" VFS female
 MV8: 1/2" VFS male
 FV8: 1/2" VFS female

Diaphragm Valve Option

None: Manual valve
 PC: Pneumatic valve
 (normally closed)

Outlet Option

None: Without
 F: Filter (0.003 μm)

Outlet Valve

MV4: 1/4" VFS male
 FV4: 1/4" VFS female
 MV8: 1/2" VFS male
 FV8: 1/2" VFS female

Outlet Pressure Indication

None: No inlet guage
 P: Pressure guage
 K: Contact pressure guage
 PT: Pressure mitter transmitter

Inlet Pressure Indication

None: No outlet guage
 P: Pressure guage
 K: Contact pressure guage
 PT: Pressure mitter transmitter

Product Feature

- The VFH Series is an In-Line filtration device
- Filter material: 316L
- Compact size and lightweight
- Outstanding chemical compatibility
- Tested for use with oxygen

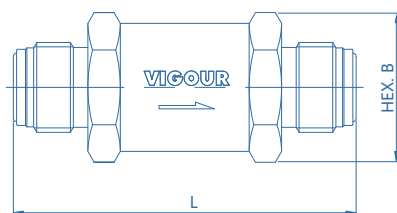


In-line Type

Technical Data

Working Pressure:	2350 psig
Working Temperature:	-10~100°C
Material	
Body:	SS 316L
Filter Element:	SS 316L
Gasket:	SS 316L / PTFE
End Connection:	VFS Threaded Fitting

Dimensions (mm)



End Connections	Dimensions (mm)	
	L	B
1/4" VFS male	79.3	32
1/2" VFS male	84.4	32

Ordering Information

VFH - S - MV4 - MV4 - 2

Material

S: 316L

Inlets / Outlets

MV4: 1/4" VFS male

MV8: 1/2" VFS male

Nominal Pore Size

0.5: 0.5 µm

2: 2 µm

5: 5 µm

10: 10 µm

20: 20 µm

40: 40 µm

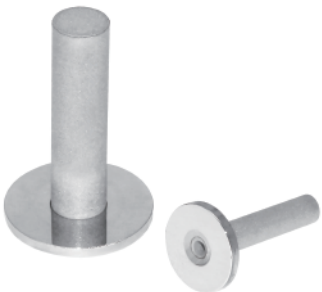
70: 70 µm

Gasket Filters

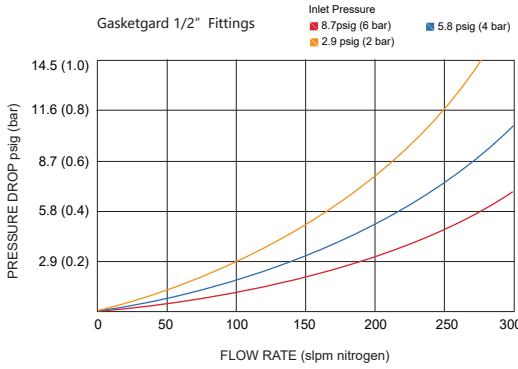
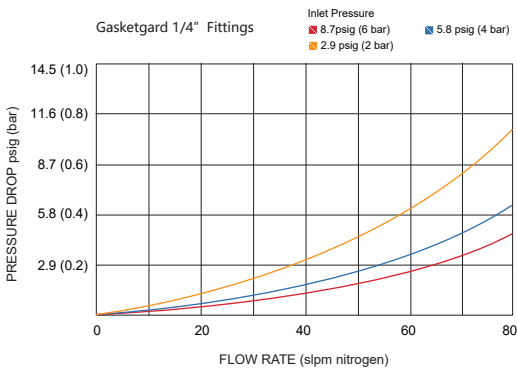
VUGF Series

Product Feature

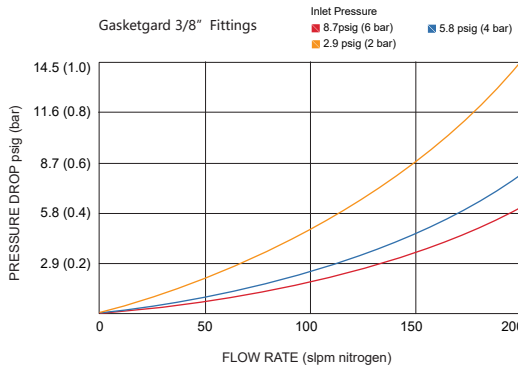
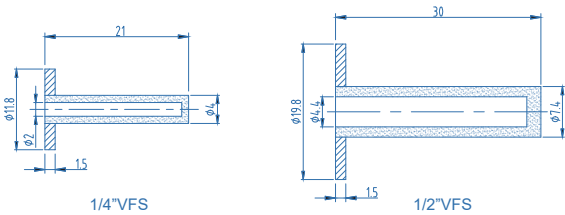
- All-metal filter
- Compact design
- Protect sensitive gas componers from particle damage
- Zntegrate into the gas system with out adding length
- Retain particles down to 0.3µm
- Dired with high purity nitrogen
- Fits in place of standard 1/4", 1/2" VFS Gasket



Flow Rate



Dimensions (mm)



Ordering Information

VUGF - GK - G4

Gasket Option

GK: Gasket

GKR: Gasket Retainer Assembly

Option

G4: 1/4" VFS Gasket

G6: 3/8" VFS Gasket

G8: 1/2" VFS Gasket

General Information



Materials

Material	Ordering Number Designator	Specification
Glands, Bodies, and Nuts		
316L stainless steel	Standard	Bar stock: ASME SA479, ASTM A276 Forgings: ASME A182
316L secondary remelt stainless steel	-SLV	Bar stock: ASME SA479, ASTM A276 Forgings: ASME A182
Gaskets		
Nickel	-NI	ASTM B162
316L stainless steel	Standard	ASTM A240, ASTM A167

Dimensions

- Dimensions are for reference only and are subject to change
- The D1 dimension refers to the smallest nominal inside diameter of the part

Pressure Ratings

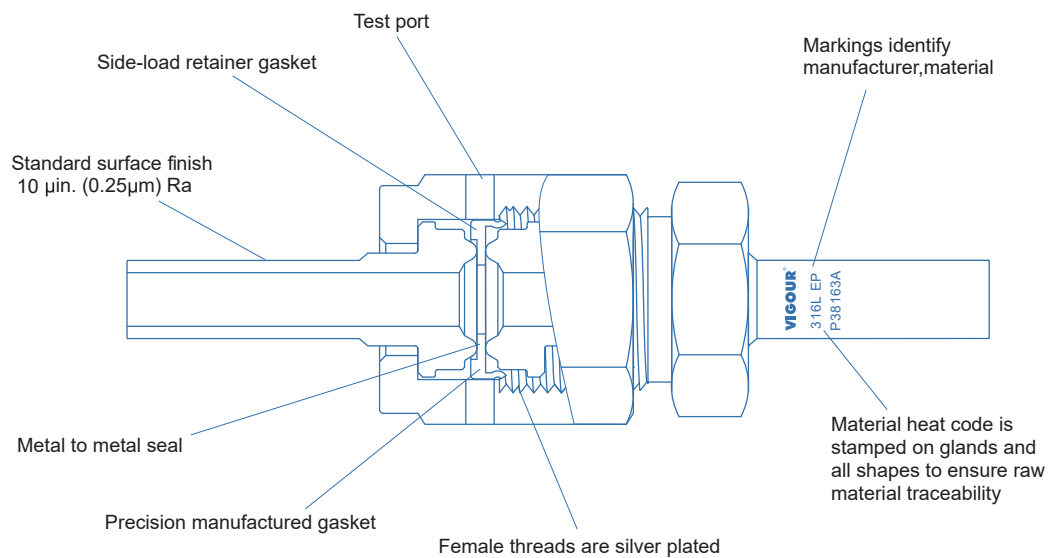
- Ratings are based upon tests conducted using VFS assemblies
- All ratings comply with calculations per ANSI Code for Pressure Piping B31.3
- To determine pressure ratings in accordance with ANSI B31.3, multiply psig rating by 0.94
- Ratings determined at ambient temperature

Components	Material	Temperature, °F (°C)
Fittings	316L stainless steel	1000 (537)
	316L secondary remelt stainless steel	1000 (537)
Gaskets	316L stainless steel	1000 (537)
	Nickel	600 (315)

Testing

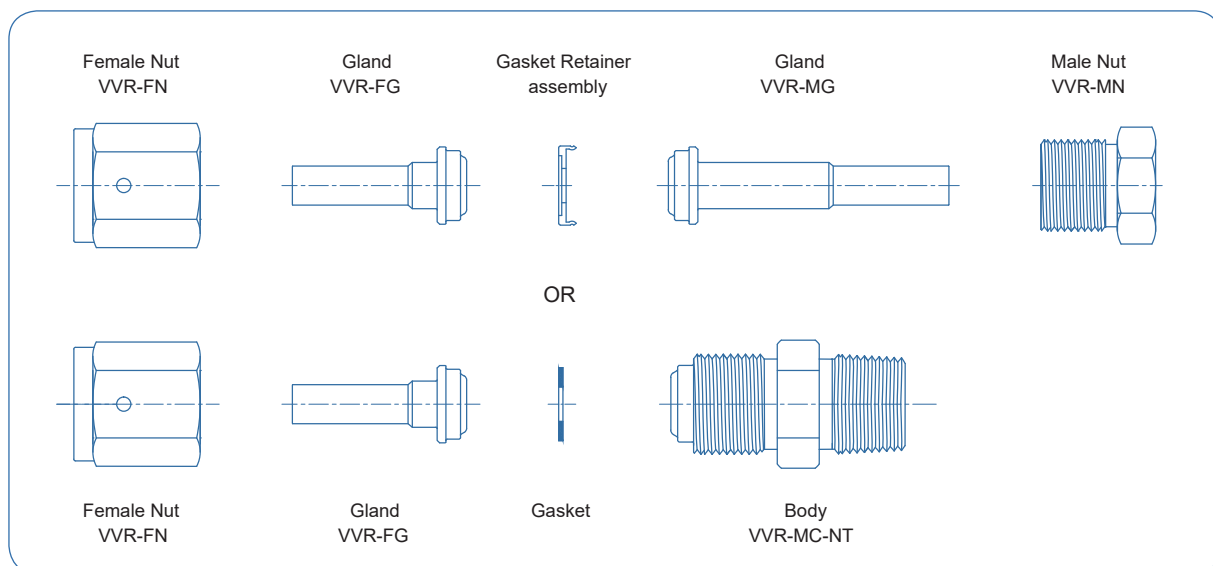
The VFS assembly with silver plating has been helium leak tested to a rate of 4×10^{-9} mbar l/s He and the unplated gasket to a rate of 4×10^{-11} mbar l/s He without leakage.

Face Seal Fittings VVR Series



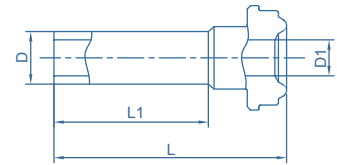
Typical VFS Assemblies

VFS assemblies are made up of four or five basic components.



Glands

Short Tube Butt Weld



D Tube OD in.	Wall Thickness in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L1	D1	L	
1/8	0.028	1/8	316L	VVR-FG2-TB2 ①	0.75	0.07	1.08	8500
			316L secondary remelt	VVR-FG2-TB2-SLV ①	(19.1)	(1.8)	(27.4)	(585)
1/4	0.035	1/4	316L	VVR-FG4-TB4	0.75	0.18	1.10	5100
			316L secondary remelt	VVR-FG4-TB4-SLV	(19.1)	(4.6)	(27.9)	(351)
1/4	0.035	1/4	316L	VVR-FG4-TB4-L18	0.38	0.18	0.72	5100
			316L secondary remelt	VVR-FG4-TB4-L18-SLV	(9.6)	(4.6)	(18.3)	(351)
1/4	0.035	1/4	316L	VVR-FG4-TB4-L15	0.25	0.18	0.60	5100
			316L secondary remelt	VVR-FG4-TB4-L15-SLV	(6.4)	(4.6)	(15.2)	(351)
1/4	0.035	1/2	316L	VVR-FG8-TB4	0.75	0.18	1.12	4300
			316L secondary remelt	VVR-FG8-TB4-SLV	(19.1)	(4.6)	(28.4)	(296)
1/4	0.035	1/2	316L	VVR-FG8-TB4-L15	0.25	0.18	0.62	4300
			316L secondary remelt	VVR-FG8-TB4-L15-SLV	(19.1)	(4.6)	(15.7)	(296)
1/4	0.035	1/2	316L	VVR-FG8-TB4-L19	0.75	0.18	0.76	4300
			316L secondary remelt	VVR-FG8-TB4-L19-SLV	(19.1)	(4.6)	(19.4)	(296)
3/8	0.035	1/2	316L	VVR-FG8-TB6	0.75	0.31	1.12	3300
			316L secondary remelt	VVR-FG8-TB6-SLV	(19.1)	(7.9)	(28.4)	(227)
3/8	0.035	1/2	316L	VVR-FG8-TB6-L15	0.25	0.31	0.62	3300
			316L secondary remelt	VVR-FG8-TB6-L15-SLV	(6.4)	(7.9)	(15.7)	(227)
1/2	0.049	1/2	316L	VVR-FG8-TB8	0.75	0.40	1.12	3700
			316L secondary remelt	VVR-FG8-TB8-SLV	(19.1)	(10.2)	(28.4)	(254)
1/2	0.049	1/2	316L	VVR-FG8-TB8-L18	0.38	0.40	0.74	3700
			316L secondary remelt	VVR-FG8-TB8-L18-SLV	(9.6)	(10.2)	(18.8)	(254)
1/2	0.049	1/2	316L	VVR-FG8-TB8-L15	0.25	0.40	0.62	3700
			316L secondary remelt	VVR-FG8-TB8-L15-SLV	(6.4)	(10.2)	(15.7)	(254)
3/4	0.065	3/4	316L	VVR-FG12-TB12	0.81	0.62	1.25	2400
			316L secondary remelt	VVR-FG12-TB12-SLV	(20.6)	(15.7)	(32)	(165)
1	0.065	1	316L	VVR-FG16-TB16	0.75	0.87	1.51	1900
			316L secondary remelt	VVR-FG16-TB16-SLV	(19.1)	(22.1)	(38.6)	(130)

① not design for gasket retainer assembly

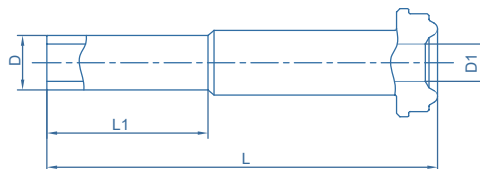
To order fittings manufactured for Surface Finish Ra(Average) < 0.4 add BA to the ordering number.
Example: VVR-FG4-TB4-BA

Face Seal Fittings

VVR Series

Glands

Long Tube Butt Weld

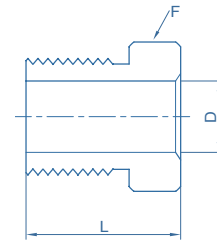


D Tube OD in.	Wall Thickness in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L1	D1	L	
1/8	0.028	1/8	316L	VVR-MG2-TB2 ①	0.75	0.07	1.42	8500
			316L secondary remelt	VVR-MG2-TB2-SLV ①	(19.1)	(1.8)	(36.1)	(585)
1/4	0.035	1/4	316L	VVR-MG4-TB4	0.75	0.18	1.70	5100
			316L secondary remelt	VVR-MG4-TB4-SLV	(19.1)	(4.6)	(43.2)	(351)
1/4	0.035	1/4	316L	VVR-MG4-TB4-L33	0.38	0.18	1.32	5100
			316L secondary remelt	VVR-MG4-TB4-L33-SLV	(9.6)	(4.6)	(33.5)	(351)
1/4	0.035	1/4	316L	VVR-MG4-TB4-L30	0.25	0.18	1.20	5100
			316L secondary remelt	VVR-MG4-TB4-L30-SLV	(6.4)	(4.6)	(30.5)	(351)
1/4	0.035	1/2	316L	VVR-MG8-TB4	0.75	0.18	1.79	4300
			316L secondary remelt	VVR-MG8-TB4-SLV	(19.1)	(4.6)	(45.5)	(296)
1/4	0.035	1/2	316L	VVR-MG8-TB4-L32	0.75	0.18	1.28	4300
			316L secondary remelt	VVR-MG8-TB4-L32-SLV	(19.1)	(4.6)	(32.7)	(296)
1/4	0.035	1/2	316L	VVR-MG8-TB4-L37	0.75	0.18	1.47	4300
			316L secondary remelt	VVR-MG8-TB4-L37-SLV	(19.1)	(4.6)	(37.4)	(296)
3/8	0.035	1/2	316L	VVR-MG8-TB6	0.75	0.31	1.79	3300
			316L secondary remelt	VVR-MG8-TB6-SLV	(19.1)	(7.9)	(45.5)	(227)
3/8	0.035	1/2	316L	VVR-MG8-TB6-L32	0.25	0.31	1.29	3300
			316L secondary remelt	VVR-MG8-TB6-L32-SLV	(6.4)	(7.9)	(32.8)	(227)
1/2	0.049	1/2	316L	VVR-MG8-TB8	0.75	0.40	1.79	3500
			316L secondary remelt	VVR-MG8-TB8-SLV	(19.1)	(10.2)	(45.5)	(241)
1/2	0.049	1/2	316L	VVR-MG8-TB8-L35	0.38	0.40	1.41	3500
			316L secondary remelt	VVR-MG8-TB8-L35-SLV	(9.6)	(10.2)	(35.8)	(241)
1/2	0.049	1/2	316L	VVR-MG8-TB8-L32	0.25	0.40	1.29	3500
			316L secondary remelt	VVR-MG8-TB8-L32-SLV	(6.4)	(10.2)	(32.8)	(241)
3/4	0.065	3/4	316L	VVR-MG12-TB12	0.75	0.65	2.03	2400
			316L secondary remelt	VVR-MG12-TB12-SLV	(19.1)	(16.5)	(51.6)	(165)
1	0.065	1	316L	VVR-MG16-TB16	0.75	0.87	2.32	2400
			316L secondary remelt	VVR-MG16-TB16-SLV	(19.1)	(22.1)	(58.9)	(165)

① not design for gasket retainer assembly

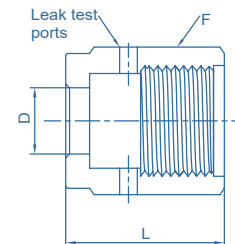
To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MG4-TB4-BA

Male Nut



VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	D
1/8	VVR-MN2	316L	3/8	0.50 (12.7)	0.21 (5.3)
1/4	VVR-MN4		5/8	0.71 (18.0)	0.36 (9.1)
1/2	VVR-MN8		15/16	0.81 (20.6)	0.61 (15.5)
3/4	VVR-MN12		1-5/16	1.00 (25.4)	0.89 (22.6)
1	VVR-MN16		1-5/8	1.19 (30.2)	1.20 (30.5)

Female Nut

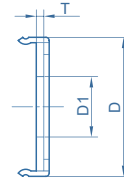


VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	D
1/8	VVR-FN2	316L	7/16	0.53 (13.5)	0.21 (5.3)
1/4	VVR-FN4		3/4	0.81 (20.6)	0.36 (9.1)
1/2	VVR-FN8		1-1/16	0.88 (22.4)	0.61 (15.5)
3/4	VVR-FN12		1-1/2	1.12 (28.4)	0.89 (22.6)
1	VVR-FN16		1-3/4	1.34 (34.0)	1.20 (30.5)

Face Seal Fittings

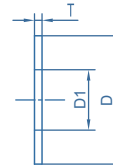
VVR Series

Gasket Retainer Assembly



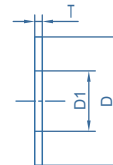
VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/4	VVR-GKR-G4	316L	0.24 (6.1)	0.028 (0.7)	0.50 (12.7)
	VVR-GKR-G4-NI	Nickel			
1/2	VVR-GKR-G8	316L	0.44 (11.2)	0.028 (0.7)	0.79 (20.1)
	VVR-GKR-G8-NI	Nickel			
3/4	VVR-GKR-G12	316L	0.66 (16.8)	0.028 (0.7)	1.14 (29.0)
	VVR-GKR-G12-NI	Nickel			
1	VVR-GKR-G16	316L	0.89 (22.6)	0.028 (0.7)	1.40 (35.6)
	VVR-GKR-G16-NI	Nickel			

Gaskets



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/8	VVR-GK-G2	316L	0.09 (2.3)	0.028 (0.7)	0.26 (6.6)
	VVR-GK-G2-NI	Nickel			
1/4	VVR-GK-G4	316L	0.22 (5.6)	0.028 (0.7)	0.47 (11.9)
	VVR-GK-G4-NI	Nickel	0.22 (5.6)	0.028 (0.7)	0.50 (12.7)
	VVR-GK-G4-12.7	316L			
	VVR-GK-G4-12.7-NI	Nickel			
1/2	VVR-GK-G8	316L	0.44 (11.2)	0.028 (0.7)	0.78 (19.8)
	VVR-GK-G8-NI	Nickel			
3/4	VVR-GK-G12	316L	0.66 (16.8)	0.028 (0.7)	1.14 (29.0)
	VVR-GK-G12-NI	Nickel			
1	VVR-GK-G16	316L	0.89 (22.6)	0.028 (0.7)	1.40 (35.6)
	VVR-GK-G16-NI	Nickel			

Filter Gaskets



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/4	VVR-GKF-G4	316L	0.22 (5.6)	0.028 (0.7)	0.47 (11.9)
	VVR-GKRF-G4				
1/2	VVR-GKF-G8	316L	0.44 (11.2)	0.028 (0.7)	0.78 (19.8)
	VVR-GKRF-G8				

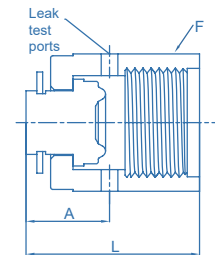
* Element Nominal Pore Size (Option) : 0.5µm / 2µm / 5µm / 10µm / 20µm / 60µm

Ordering Example: VVR-GKF-G4-0.5

Dimensions are for reference only
and are subject to change without prior notice

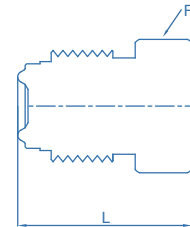
Face Seal Fittings VVR Series

Cap



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			F Hex Flat	L	A
1/8	VVR-C2	316L	7/16	0.63 (16.0)	0.30 (7.6)
1/4	VVR-C4		3/4	0.94 (23.9)	0.44 (11.2)
1/2	VVR-C8		1-1/16	1.01 (25.6)	0.45 (11.4)
3/4	VVR-C12		1-1/2	1.29 (32.8)	0.54 (13.7)
1	VVR-C16		1-3/4	1.54 (39.1)	0.63 (16.0)

Plug

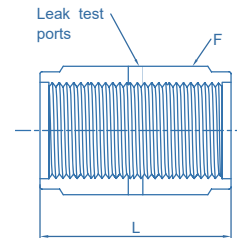


VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)	
			F Hex Flat	L
1/8	VVR-P2 ^①	316L	3/8	0.68 (17.3)
1/4	VVR-P4 ^②		5/8	0.92 (23.4)
1/2	VVR-P8		15/16	1.08 (27.4)
3/4	VVR-P12		1-5/16	1.43 (36.3)
1	VVR-P16		1-5/8	1.52 (38.6)

① Not designed for gasket retainer assembly.

② Also available as a rotatable plug.
Ordering number: VVR-P8-R

Coupling



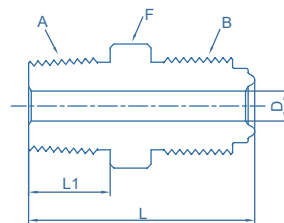
VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)	
			L	F
1/8	316L	VVR-FU2	0.66 (16.8)	7/16
1/4		VVR-FU4	1.19 (30.2)	3/4
1/2		VVR-FU8	1.31 (33.3)	1-1/16
3/4		VVR-FU12	1.68 (42.7)	1-1/2
1		VVR-FU16	2.04 (51.8)	1-3/4

Dimensions are for reference only
and are subject to change without prior notice

Face Seal Fittings

VVR Series

Male NPT Connectors ^①

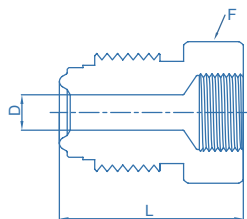


A NPT Size in.	B VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
				L	L1	D	F	NI	SS
1/16	1/8	316L	VVR-MC2-M1 ^①	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ^③	3/8	9000 (620)	9000 (620)
1/8	1/8		VVR-MC2-M2 ^②	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ^③	7/16	9000 (620)	9000 (620)
1/8	1/4		VVR-MC4-M2	1.31 (33.3)	0.38 (9.6)	0.18 (4.6)	5/8	10000 (689)	6400 (440)
1/4	1/4		VVR-MC4-M4	1.49 (37.8)	0.56 (14.2)	0.18 (4.6)	5/8	10000 (689)	6400 (440)
1/4	1/2		VVR-MC8-M4	1.65 (41.9)	0.56 (14.2)	0.28 (7.1) ^③	15/16	4300 (296)	2800 (192)
3/8	1/2		VVR-MC8-M6	1.65 (41.9)	0.56 (14.2)	0.38 (9.6)	15/16	4300 (296)	2800 (192)
1/2	1/2		VVR-MC8-M8	1.84 (46.7)	0.75 (19.1)	0.4 (10.2)	15/16	4300 (296)	2800 (192)
3/4	3/4		VVR-MC12-M12	2.19 (55.6)	0.75 (19.1)	0.62 (15.7)	1-5/16	3700 (254)	2400 (165)
1	1		VVR-MC16-M16	2.47 (62.7)	0.94 (23.9)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

- ① VFS components with fixed threads must remain stationary during installation.
These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
- ② Not designed for gasket retainer assembly
- ③ May contain internal diameter transitions

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MC4-M4-BA

Female NPT Connectors ^①



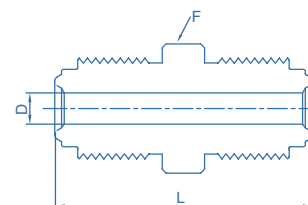
NPT Size in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
				L	D	F flat	NI	SS
1/16	1/8	316L	VVR-MC2-F1 ^①	1.10 (27.9)	0.09 (2.3)	7/16	6700 (461)	6700 (461)
1/8	1/8		VVR-MC2-F2 ^②	1.19 (30.2)	0.09 (2.3)	9/16	6500 (447)	6500 (447)
1/8	1/4		VVR-MC4-F2	1.41 (35.8)	0.18 (4.6)	5/8	8000 (551)	8000 (551)
1/4	1/4		VVR-MC4-F4	1.54 (39.1)	0.18 (4.6)	3/4	6600 (454)	6600 (454)
3/8	1/2		VVR-MC8-F6	1.76 (44.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
1/2	1/2		VVR-MC8-F8	1.99 (50.5)	0.40 (10.2)	1-1/16	3500 (241)	4300 (296)
3/4	3/4		VVR-MC12-F12	2.36 (59.9)	0.62 (15.7)	1-5/16	3000 (206)	3700 (254)
1	1		VVR-MC16-F16	2.51 (63.8)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

- ① VFS components with fixed threads must remain stationary during installation.
These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
- ② Not designed for gasket retainer assembly

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MC4-F4-BA

Face Seal Fittings VVR Series

Male Union^①



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
			L	D	F	NI	SS
1/8	316L	VVR-MU2 ^②	1.13 (28.7)	0.09 (2.3)	3/8	9000 (620)	11200 (771)
1/4		VVR-MU4	1.55 (39.4)	0.18 (4.6)	5/8	8000 (551)	10000 (689)
1/2		VVR-MU8	1.84 (46.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
3/4		VVR-MU12	2.44 (62.0)	0.62 (15.7)	1-5/16	3000 (206)	3700 (254)
1		VVR-MU16	2.59 (65.8)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

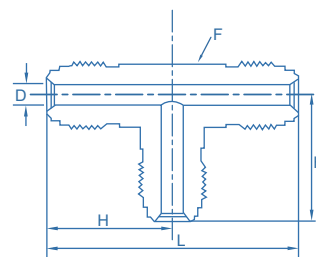
① VFS components with fixed threads must remain stationary during installation.

These fitting connections should be assembled to glands with rotating male or female threaded nuts.

② Not designed for gasket retainer assembly

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MU4-BA

Male Union Tee



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
			L	D	F	H	NI	SS
1/8	316L	VVR-MUT-2	1.78 (45.2)	0.09 (2.3)	7/16	0.89 (22.6)	9000 (620)	11200 (771)
1/4		VVR-MUT-4	2.14 (54.4)	0.18 (4.6)	1/2	1.07 (27.2)	8000 (551)	10000 (689)
1/2		VVR-MUT-8	2.90 (73.7)	0.40 (10.2)	13/16	1.45 (36.8)	3500 (241)	4300 (296)
3/4		VVR-MUT-12	3.84 (97.5)	0.62 (15.7)	1-1/4	1.92 (48.8)	3000 (206)	3700 (254)
1		VVR-MUT-16	4.00 (102)	0.87 (22.1)	1-11/16	2.00 (50.8)	2400 (165)	3000 (206)

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.

Example: VVR-MUT-4-BA

Fitting Lock Device

This device is intended for use on VIGOUR VFS metal gasket face seal assemblies with standard male and female nuts.



Size in.	Material	Ordering Number
1/4	316L	VVR-FLD-4
1/2	316L	VVR-FLD-8



Size in.	Material	Matching product	Ordering Number
1/4	316L	VDV32	VVR-FLD-DV32-4
		VDV33	VVR-FLD-DV33-4
1/2	316L	VDV32	VVR-FLD-DV32-8
		VDV33	VVR-FLD-DV33-8

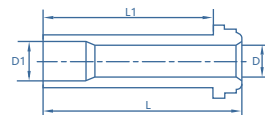
Dimensions are for reference only
and are subject to change without prior notice

Face Seal Fittings

HVVR Series

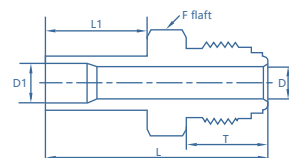
High-Flow Connections

Glands Tube Butt Weld



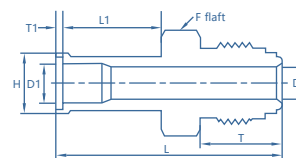
Tube Size in.	Nominal Wall Thickness	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
					L	L1	D	D1	Ni	316L
3/8	0.035	1/4	316L	HVVR-HG4-TB6-L15	0.60 (15.2)	0.41 (10.4)	0.25 (6.4)	0.31 (7.9)	3300 (227)	3300 (227)
3/8	0.035	1/4	316L	HVVR-HG4-TB6-L30	1.19 (30.2)	1.00 (25.4)	0.25 (6.4)	0.31 (7.9)	3300 (227)	3300 (227)
3/8	0.035	1/4	316L	HVVR-HG4-TB6-L33	1.31 (33.3)	1.12 (28.4)	0.25 (6.4)	0.31 (7.9)	3300 (227)	3300 (227)

Bodies Tube Butt Weld



Tube Size in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)						Working Pressure psig (bar)	
				L	L1	T	D	D1	F	Ni	316L
3/8	1/4	316L	HVVR-MG4-TB6	1.68 (42.7)	0.75 (19.1)	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	5/8	3300 (227)	3300 (227)

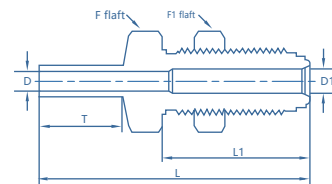
Bodies Automatic Tube Weld



Tube Size in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)								Working Pressure psig (bar)	
				L	L1	T	T1	D	D1	F	H	Ni	316L
3/8	1/4	316L	HVVR-AHG4-TW6	1.71 (43.4)	0.75 (19.1)	0.62 (15.7)	0.03 (0.8)	0.25 (6.4)	0.31 (7.9)	5/8	0.41 (10.4)	3300 (227)	3300 (227)

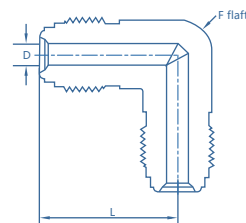
High-Flow Connections

Bodies Bulkhead Connector



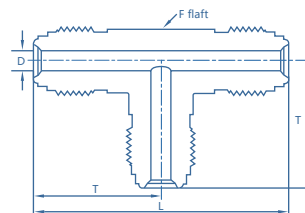
Tube Size in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)							Panel Hole Dia	Max Panel Thickness	Working Pressure psig (bar)	
				L	L1	T	D	D1	F	F1			Ni	316L
3/8	1/4	316L	HVVR-BMG4-TB6	2.36 (59.9)	1.30 (33.0)	0.75 (19.1)	0.31 (7.9)	0.25 (6.4)	3/4	3/4	19/32 (15.0)	0.44 (11.2)	3300 (227)	3300 (227)

Union Elbow



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
			L	D	F	Ni	316L
1/4	316L	HVVR-UE4	1.07 (27.2)	0.25 (6.4)	1/2	8000 (551)	10000 (689)

Union Tee



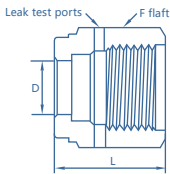
VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
			L	T	D	F	Ni	316L
1/4	316L	HVVR-UT4	2.14 (54.4)	1.07 (27.2)	0.25 (6.4)	1/2	8000 (551)	10000 (689)

Face Seal Fittings

HVVR Series

High-Flow Connections

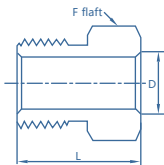
Nuts Female



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)		
			L	D	F
1/4	316L	HVVR-FN4 ^①	0.81 (20.6)	0.39 (9.9)	3/4

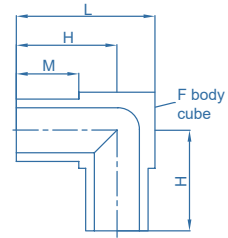
① Use for High Flow Connections: Glands Tube Butt Weld

Nuts Male



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)		
			L	D	F
1/4	316L	HVVR-MN4	0.71 (18.0)	0.39 (9.9)	5/8

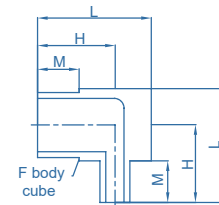
Union Elbow



Tube OD in.	Wall Thickness in.	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
			L	M	F	H	
1/8	0.028	VMW-UE2 VMW-UE2-SLV	0.56 (14.2)	0.25 (6.4)	5/16	0.41 (10.4)	8500 (585)
1/4	0.035	VMW-UE4 VMW-UE4-SLV	0.56 (14.2)		5/16	0.41 (10.4)	5100 (351)
3/8	0.035	VMW-UE6 VMW-UE6-SLV	0.69 (17.5)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	VMW-UE8 VMW-UE8-SLV	0.81 (20.6)		9/16	0.53 (13.5)	3700 (254)
3/4	0.065	VMW-UE12 VMW-UE12-SLV	1.06 (27.0)		13/16	0.66 (16.6)	2400 (165)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VMW-UE6-BA

Reducing Elbow



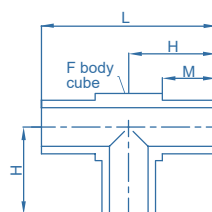
Tube OD in.	Wall Thickness in.	Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
					L	M	F	H	
1/4	0.035	1/8	0.028	VMW-RE4-2 VMW-RE4-2-SLV	0.56 (14.2)	0.25 (6.4)	5/16	0.41 (10.3)	3300 (227)
3/8	0.035	1/4	0.035	VMW-RE6-4 VMW-RE6-4-SLV	0.69 (17.5)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	1/4	0.035	VMW-RE8-4 VMW-RE8-4-SLV	0.81 (20.6)		9/16	0.53 (13.5)	3700 (254)
1/2	0.049	3/8	0.035	VMW-RE8-6 VMW-RE8-6-SLV	0.81 (20.6)		9/16	0.53 (13.5)	3300 (227)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VMW-RE6-4-BA

Micro Weld fittings

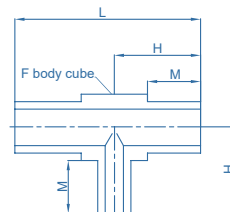
VMW Series

Union Tee



Tube OD in.	Wall Thickness in.	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
			L	M	F	H	
1/8	0.028	VMW-UT2 VMW-UT2-SLV	0.82 (20.8)	0.25 (6.4)	5/16	0.41 (10.4)	8500 (585)
1/4	0.035	VMW-UT4 VMW-UT4-SLV	0.82 (20.8)		5/16	0.41 (10.4)	5100 (351)
3/8	0.035	VMW-UT6 VMW-UT6-SLV	0.94 (23.9)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	VMW-UT8 VMW-UT8-SLV	1.06 (26.9)		9/16	0.53 (13.5)	3700 (254)
3/4	0.065	VMW-UT12 VMW-UT12-SLV	1.31 (33.3)		13/16	0.65 (16.6)	2400 (165)

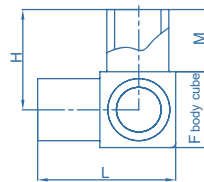
Reducing Tee



Tube OD in.	Wall Thickness in.	Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
					L	M	F	H	
1/4	0.035	1/8	0.028	VMW-RT4-2 VMW-RT4-2-SLV	0.81 (20.6)	0.25 (6.4)	5/16	0.41 (10.3)	3300 (227)
3/8	0.035	1/4	0.035	VMW-RT6-4 VMW-RT6-4-SLV	0.94 (23.9)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	1/4	0.035	VMW-RT8-4 VMW-RT8-4-SLV	1.06 (26.9)		9/16	0.53 (13.5)	3700 (254)
1/2	0.049	3/8	0.035	VMW-RT8-6 VMW-RT8-6-SLV	1.06 (26.9)		9/16	0.53 (13.5)	3300 (227)

To order fittings manufactured for Surface Finish Ra(Average) < 0.4 add BA to the ordering number.
Example: VMW-RT6-4-BA

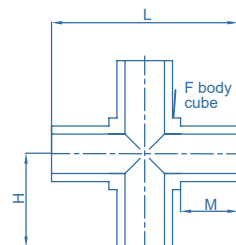
Tribow



Tube OD in.	Wall Thickness in.	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
			L	M	F	H	
1/4	0.035	VMW-TB4 VMW-TB4-SLV	0.56 (14.2)	0.25 (6.4)	5/16	0.41 (10.4)	5100 (351)
3/8	0.035	VMW-TB6 VMW-TB6-SLV	0.69 (17.5)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	VMW-TB8 VMW-TB8-SLV	0.81 (20.6)		9/16	0.53 (13.5)	3700 (254)

To order fittings manufactured for Surface Finish Ra(Average) < 0.4 add BA to the ordering number.
Example: VMW-TB6-BA

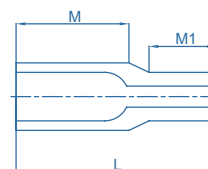
Cross Union



Tube OD in.	Wall Thickness in.	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
			L	M	F	H	
1/8	0.028	VMW-CU2 VMW-CU2-SLV	0.82 (20.8)	0.25 (6.4)	5/16	0.41 (10.4)	8500 (585)
1/4	0.035	VMW-CU4 VMW-CU4-SLV	0.82 (20.8)		5/16	0.41 (10.4)	5100 (351)
3/8	0.035	VMW-CU6 VMW-CU6-SLV	0.94 (23.9)		7/16	0.47 (11.9)	3300 (227)
1/2	0.049	VMW-CU8 VMW-CU8-SLV	1.06 (26.9)		9/16	0.53 (13.5)	3700 (254)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VMW-CU4-BA

Reducing Union



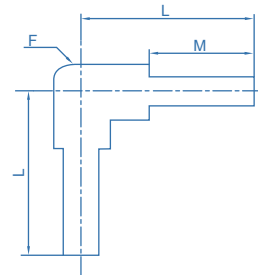
Tube OD in.	Wall Thickness in.	Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L	M	M1	
1/4	0.035	1/8	0.028	VMW-RU4-2 VMW-RU4-2-SLV	0.75 (19.0)	0.42 (10.7)	0.25 (6.4)	5100 (351)
3/8	0.035	1/4	0.035	VMW-RU6-4 VMW-RU6-4-SLV				3300 (227)
1/2	0.049	1/4	0.035	VMW-RU8-4 VMW-RU8-4-SLV				3700 (254)
1/2	0.049	3/8	0.035	VMW-RU8-6 VMW-RU8-6-SLV				3300 (227)
3/4	0.065	1/4	0.035	VMW-RU12-4 VMW-RU12-4-SLV				2400 (165)
3/4	0.065	3/8	0.035	VMW-RU12-6 VMW-RU12-6-SLV				2400 (165)
3/4	0.065	1/2	0.049	VMW-RU12-8 VMW-RU12-8-SLV				2400 (165)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VMW-RU6-4-BA

Tube Butt Weld fittings

VTW Series

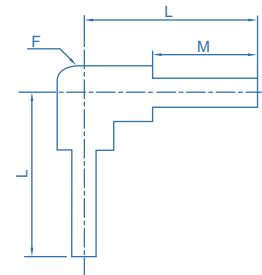
Long Elbow 90°



Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
			L	M	F	
1/4	0.035	VTW-LE4	1.23 (31.2)	0.75 (19.0)	7/16	5100 (351)
3/8	0.035	VTW-LE6	1.20 (30.5)		7/16	3300 (227)
1/2	0.049	VTW-LE8	1.34 (34.0)		11/16	3700 (254)
3/4	0.065	VTW-LE12	1.46 (37.1)		15/16	2400 (165)
1	0.065	VTW-LE16	1.34 (34.0)		1-1/4	1900 (130)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VTW-LE4-BA

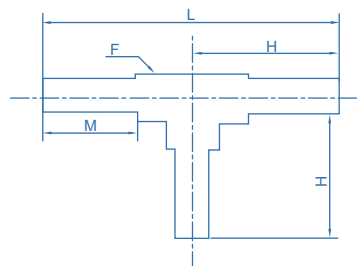
Reducing Long Elbow



Tube OD in.	Wall Thickness in.	Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L	M	F	
3/8	0.039	1/4	0.039	VTW-RLE6-4	0.98 (25)	0.75 (19.0)	6/16	3300 (227)
1/2	0.049	1/4	0.039	VTW-RLE8-4	1.06 (27)		7/16	3700 (254)
1/2	0.049	3/8	0.039	VTW-RLE8-6	1.06 (27)		7/16	3300 (227)
3/4	0.065	1/4	0.039	VTW-RLE12-4	1.24 (31.5)		15/16	2400 (165)
3/4	0.065	3/8	0.039	VTW-RLE12-6	1.24 (31.5)		15/16	2400 (165)
3/4	0.065	1/2	0.049	VTW-RLE12-8	1.24 (31.5)		15/16	2400 (165)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VTW-RLE6-4-BA

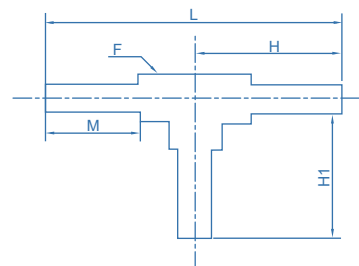
Long Tee



Tube OD in.	Wall Thickness in.	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)
			L	M	F	H	
1/4	0.035	VTW-LT4	2.46 (62.5)	0.75 (19.0)	7/16	1.23 (31.2)	5100 (351)
3/8	0.035	VTW-LT6	2.40 (61.0)		7/16	1.20 (30.5)	3300 (227)
1/2	0.049	VTW-LT8	2.68 (68.1)		11/16	1.34 (34.0)	3700 (254)
3/4	0.065	VTW-LT12	2.91 (73.9)		15/16	1.46 (37.1)	2400 (165)
1	0.065	VTW-LT16	2.68 (68.1)		1-1/4	1.34 (34.0)	1900 (130)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VTW-LT4-BA

Reducing Long Tee

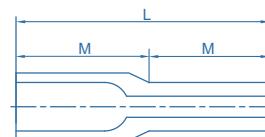


Tube OD in.	Wall Thickness in.	Tube OD	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)					Working Pressure psig (bar)
					L	M	F	H	H1	
3/8	0.035	1/4	0.035	VTW-RLT6-4	2.39 (60.7)	0.75 (19.0)	7/16	1.20 (30.5)	1.23 (31.2)	3300 (227)
1/2	0.049	1/4	0.035	VTW-RLT8-4	2.67 (67.8)		11/16	1.34 (34.0)	1.34 (34.0)	3700 (254)
1/2	0.049	3/8	0.035	VTW-RLT8-6	2.67 (67.8)		11/16	1.34 (34.0)	1.35 (34.3)	3300 (227)
3/4	0.065	1/4	0.035	VTW-RLT12-4	2.91 (73.9)		15/16	1.46 (37.1)	1.48 (37.6)	2400 (165)
3/4	0.065	3/8	0.035	VTW-RLT12-6	2.91 (73.9)		15/16	1.46 (37.1)	1.48 (37.6)	2400 (165)
3/4	0.065	1/2	0.049	VTW-RLT12-8	2.48 (63.0)		15/16	1.24 (31.5)	1.24 (31.5)	2400 (165)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VTW-RLT6-4-BA

Tube Butt Weld fittings VTW Series

Reducing Long Union

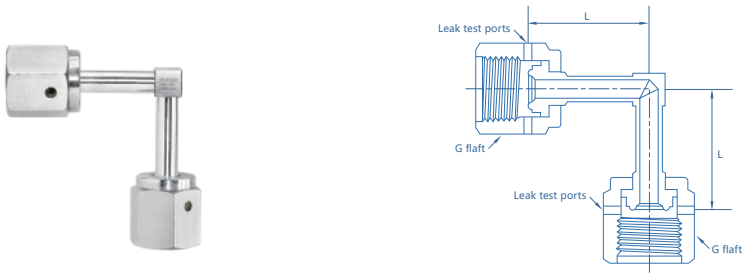


Tube OD in.	Wall Thickness in.	Tube OD in.	Wall Thickness mm	Ordering Number	Dimensions, in.(mm)		Working Pressure psig (bar)
					L	M	
3/8	0.035	1/4	0.035	VTW-RLU6-4	1.50 (38.1)	0.75 (19.0)	3300 (227)
1/2	0.049	1/4	0.035	VTW-RLU8-4			3700 (254)
1/2	0.049	3/8	0.035	VTW-RLU8-6			3300 (227)
3/4	0.065	1/4	0.035	VTW-RLU12-4			2400 (165)
3/4	0.065	3/8	0.035	VTW-RLU12-6			2400 (165)
3/4	0.065	1/2	0.049	VTW-RLU12-8			2400 (165)
1	0.065	1/4	0.035	VTW-RLU16-4			2400 (165)
1	0.065	3/8	0.049	VTW-RLU16-6			2400 (165)
1	0.065	1/2	0.049	VTW-RLU16-8			2400 (165)
1	0.065	3/4	0.049	VTW-RLU16-12			2400 (165)

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VTW-RLU6-4-BA

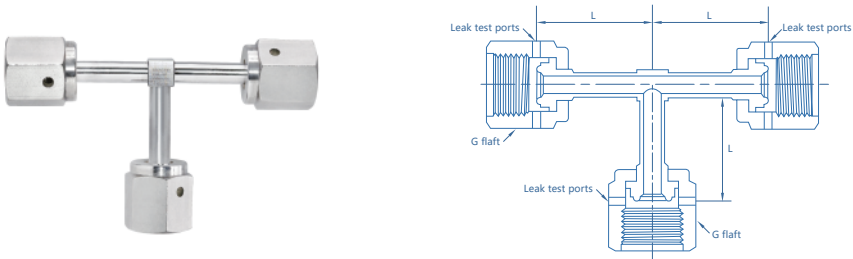
Welded Assemblies

Female Elbow



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)		Working Pressure psig (bar)	
			L	G	Ni	316L
1/4	316L	VWR-FE4	1.00 (25.4)	3/4	8000 (551)	10000 (689)

Female Tee



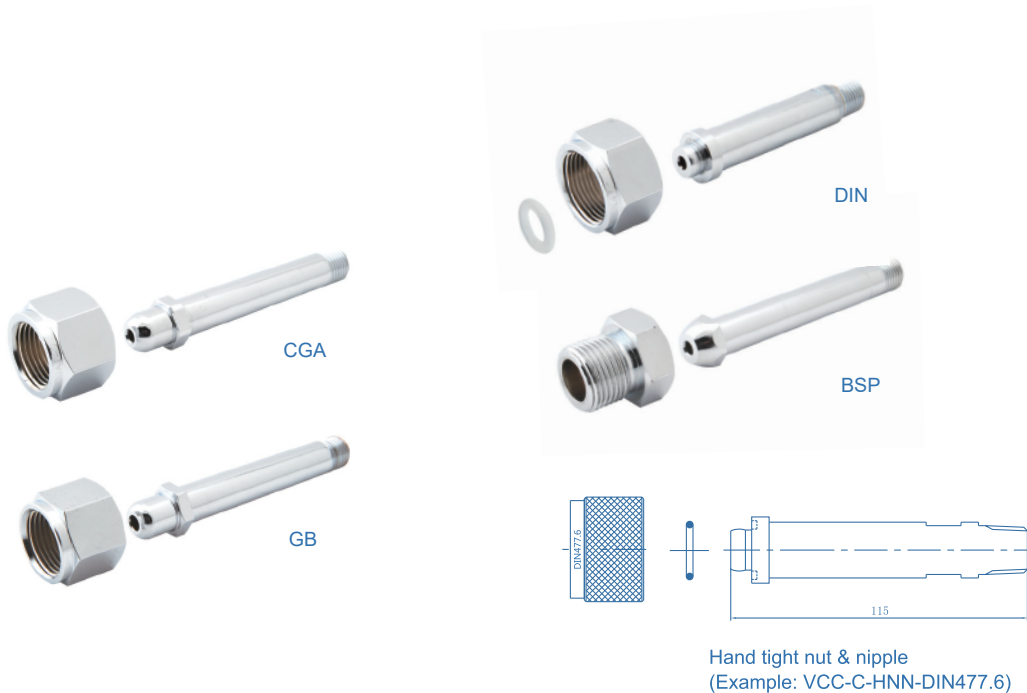
VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)		Working Pressure psig (bar)	
			L	G	Ni	316L
1/4	316L	VWR-FT4	1.00 (25.4)	3/4	8000 (551)	10000 (689)

Cylinder Connections

VUC Series

Product Feature

- Cylinder Connections
- Connect to a cylinder valve
- 1/4" NPT male / 6mm tube fitting / 6mm OD tube connection
- All connections are degrease to oxygen service
- 15µin. Ra max., 10µin. Ra average surface finish



Ordering Information

VUC - S - N - CGA580 - TF6M

Material

S: 316L

Parts Code

N: nut
 NN: nut, nipple
 HN: hand tight nut
 HNN: hand tight nut, nipple
 NNP: nut, nipple, plug
 NNGP: nut, nipple, gasket, plug
 G: gasket

Inlet Connection

None: 1/4" NPT(M)
 6M: 6mm tube fitting
 TW6M: 6mm tube weld
 TW4: 1/4" tube weld

Cylinder Connection

Detailed description of the cylinder connection including the relevant standard and number of the connection

Technical Data

Materials of Construction

Wetted

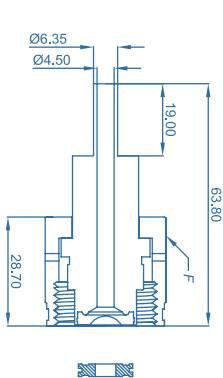
Nuts	316 Stainless Steel
Nipples	316L Stainless Steel
Outlet Adapters	316L Stainless Steel
Cylinder Valve Outlet Caps	316L Stainless Steel
Gaskets	Nickel Standard*

*Contact factory for other materials available.

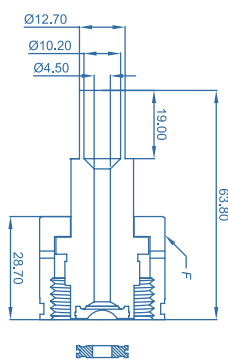


Nut, Nipple and Nickel Gasket Assembly

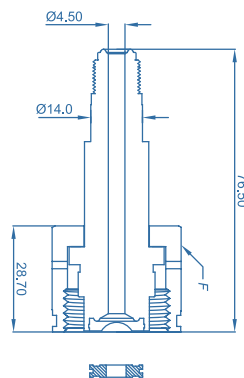
CGA/DISS Number	End Connection	F Hex Flat in.
632 ~ 642	1/4" Tube Weld	1-1/4
	1/2" Tube Weld	
	1/4" VFS Male	
	1/4" NPT Male	
712 ~ 728	1/4" Tube Weld	1-3/8"
	1/2" Tube Weld	
	1/4" VFS Male	
	1/4" NPT Male	



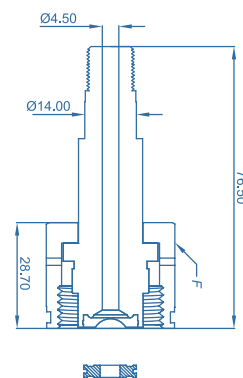
1/4" Tube Weld



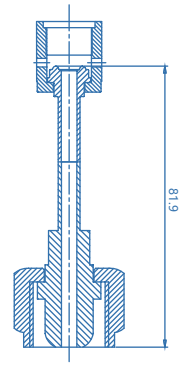
1/2" Tube Weld



1/4" VFS Male



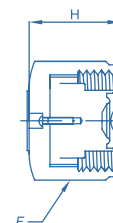
1/4" NPT Male



Cylinder Connections to
1/4" VFS Female

CAPS

CGA/DISS Number	Ordering Number	Material	F Hex Flat in.	H Length in.	Gas Tight
632 ~ 642	VUC-DISS-C-63	Nickel / PTFE	1-1/4	0.98	Yes
712 ~ 728	VUC-DISS-C-71		1-3/8		



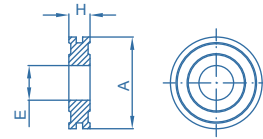
Cylinder Connections

VUC DISS Series

GASKETS

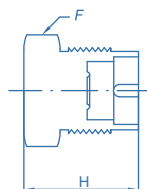
Material	Ordering Number	A	H	E
Nickle	VUC-DISS-G-NI	0.56	0.105	0.21
PCTFE	VUC-DISS-G-PC		0.125	

* Hardness Max. 105 Vickers.

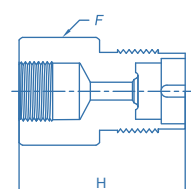


Plugs and Adapters

CGA/DISS Number	Ordering Number	End Connection	H Overall Length	F Hex Flat in.
632 ~ 642	VUC-DISS-BP-63	Plug	1.53	1-1/8
	VUC-DISS-A-F4-63	1/4" NPT Female	1.85	
712 ~ 718	VUC-DISS-BP-71	Plug	1.53	1-1/4
	VUC-DISS-A-F4-71	1/4" NPT Female	1.85	
720 ~ 728	VUC-DISS-BP-72	Plug	1.53	1-1/4
	VUC-DISS-A-F4-72	1/4" NPT Female	1.85	



Plug



Adaptor

Ordering Information

VUC-DISS- NNG - CGA632 - TW4 - Ni

Parts Code

N: nut
P: nipple
NNG: nut, nipple, gasket
NNGP: nut, nipple, gasket, plug

CGA Number

CGA632 CGA642 CGA720
CGA634 CGA712 CGA722
CGA636 CGA714 CGA724
CGA638 CGA716 CGA726
CGA640 CGA718 CGA728

Gasket Material

Ni: Nickle
PC: PCTFE

End Connection

MV4: 1/4" VFS male
TW4: 1/4" tube weld
TW8: 1/2" tube weld
FV4: 1/4" VFS Female
M4: 1/4" NPT male

* Other connection standard, consult factory

Pressure Gauge VGU/VRU/VGT/VRT/VG/VR Series

Product Feature

- UHP “clean” for semiconductor gas applications, in accordance with SEMI/SEMATECH
- Purged with nitrogen
- Protective cap over threaded connection
- 100% factory calibrated and helium leak tested to a maximum rate of 1×10^{-9} mbar l/s He

Technical Data

Type	pressure gauge
Materials:	
End connection	316L VAR, electropolished
Bourdon tube	316L SS
Case	304 SS
Lens	polycarbonate
Movement	stainless steel
Dial & Pointer	aluminum
Scale	psig/bar dual scale
Dial size	2"
Accuracy	Grade A per ASME B40.1
Ambient temperature	-40°F to 140°F (-40°C to 60°C)



VRU



VGU



VRT



VGT

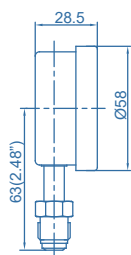
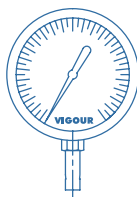
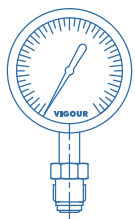


VR

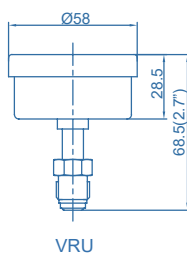


VG

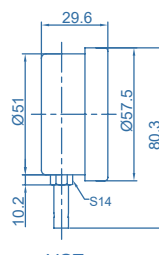
Dimensions



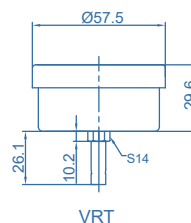
VGU



VRU



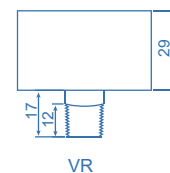
VGT



VRT



VR



VR

Ultra High Purity Gauge

VGU/VRU/VGT/VRT/VG/VR Series

Ordering Information

VGU/VRU Series (Ultra High Purity)

Ordering Number	Inlet Connection	Pressure Range (bar/psig)
VGU Series, Lower Mount, VFS End		
VGU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-FV4	1/4" VFS female	0~1.6/2.5/4/6/7/10/14/16/25/35/60 bar 0~23/30/60/86/100/140/200/230/350/500/860 psig
VGU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-MV4	1/4" VFS male	
VGU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-RMV4	1/4" rotatable VFS male	
VGU20S-100/150/250/315/400B-FV4	1/4" VFS female	0~100/150/250/315/400 bar 0~1500/2000/3500/4500/5800 psig
VGU20S-100/150/250/315/400B-MV4	1/4" VFS male	
VGU20S-100/150/250/315/400B-RMV4	1/4" rotatable VFS male	
VGU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-FV4	1/4" VFS female	Vac~1.6/2.5/4/6/7/10/14/16 bar Vac~23/30/60/86/100/140/200/230 psig
VGU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-MV4	1/4" VFS male	
VGU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-RMV4	1/4" rotatable VFS male	
VRU Series, Center-Back Mount, VFS End		
VRU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-FV4	1/4" VFS female	0~1.6/2.5/4/6/7/10/14/16/25/35/60 bar 0~23/30/60/86/100/140/200/230/350/500/860 psig
VRU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-MV4	1/4" VFS male	
VRU20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-RMV4	1/4" rotatable VFS male	
VRU20S-100/150/250/315/400B-FV4	1/4" VFS female	0~100/150/250/315/400 bar 0~1500/2000/3500/4500/5800 psig
VRU20S-100/150/250/315/400B-MV4	1/4" VFS male	
VRU20S-100/150/250/315/400B-RMV4	1/4" rotatable VFS male	
VRU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-FV4	1/4" VFS female	Vac~1.6/2.5/4/6/7/10/14/16 bar Vac~23/30/60/86/100/140/200/230 psig
VRU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-MV4	1/4" VFS male	
VRU20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-RMV4	1/4" rotatable VFS male	

VGT/VRT Series(Tube Connection)

Ordering Number	Inlet Connection	Pressure Range (bar/psig)
VGT Series, Lower Mount, Tube End		
VGT20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-T4	1/4"tube	0~1.6/2.5/4/6/7/10/14/16/25/35/60 bar
VGT20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-T6M	6mm tube	0~23/30/60/86/100/140/200/230/350/500/860 psig
VGT20S-100/150/250/315/400B-T4	1/4"tube	0~100/150/250/315/400 bar
VGT20S-100/150/250/315/400B-T6M	6mm tube	0~1500/2000/3500//4500/5800 psig
VGT20S-V2.5/V4/V16B-T4	1/4"tube	Vac~1.6/2.5/4/6/7/10/14/16 bar
VGT20S-V2.5/V4/V16B-T6M	6mm tube	Vac~23/30/60/86/100/140/200/230 psig
VRT Series, Center-Back Mount, Tube End		
VRT20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-T4	1/4"tube	0~1.6/2.5/4/6/7/10/14/16/25/35/60 bar
VRT20S-1.6/2.5/4/6/7/10/14/16/25/35/60B-T6M	6mm tube	0~23/30/60/86/100/140/200/230/350/500/860 psig
VRT20S-100/150/250/315/400B-T4	1/4"tube	0~100/150/250/315/400 bar
VRT20S-100/150/250/315/400B-T6M	6mm tube	0~1500/2000/3500/4500/5800 psig
VRT20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-T4	1/4"tube	Vac~1.6/2.5/4/6/7/10/14/16 bar
VRT20S-V1.6/V2.5/V4/V6/V7/V10/V14/V16B-T6M	6mm tube	Vac~23/30/60/86/100/140/200/230 psig

VG/VR Series(NPT Connection)

Ordering Number	Inlet Connection	Pressure Range (bar/psig)
VG Series, Lower Mount, NPT End		
VG20S-1.6/2.5/4/6/10/16/25/35/60B-M4	1/4"male NPT	0~1.6/2.5/4/6/10/16/25/35/60 bar 0~23/30/60/86/140/230/350/500/860 psig
VG20S-100/150/250/315/400B-M4	1/4"male NPT	0~100/150/250/315/400 bar 0~1500/2000/3500//4500/5800 psig
VG20S-V1.6/V2.5/V4/V6/V10/V16B-M4	1/4"male NPT	Vac~1.6/2.5/4/6/10/16 bar Vac~23/30/60/86/140/230 psig
VR Series, Center-Back Mount, NPT End		
VR20S-1.6/2.5/4/6/10/16/25/35/60B-M4	1/4"male NPT	0~1.6/2.5/4/6/10/16/25/35/60 bar 0~23/30/60/86/140/230/350/500/860 psig
VR20S-100/150/250/315/400B-M4	1/4"male NPT	0~100/150/250/315/400 bar 0~1500/2000/3500/4500/5800 psig
VR20S-V1.6/V2.5/V4/V6/V10/V16B-M4	1/4"male NPT	Vac~1.6/2.5/4/6/10/16 bar Vac~23/30/60/86/140/230 psig

Contact Gauges VGU20SE / VRU20SE Series

Product Feature

- Contact gauge (KI) with inductance contact
- For monitoring gas supply pressure and shortage
- For inert, combustible, oxidizing, and corrosive gases and gas mixtures
- standard surface finish 10 μ m. (0.25 μ m) Ra
- Line 0.5m
- With NAMUR sensor
- Set point adjustable over 0~24% of scale
- Tested for use with oxygen

Typical Applications

Gas panels may be optionally equipped with contact pressure gauges. Contact pressure gauges combine the advantages of in situ readings with the demands of electrical signal transmissions. In combination with signal boxes, this creates visual and acoustic warning signals in the case of pressure drop and the monitoring of line pressure according to adjustable thresholds.

Technical Data

Dual scale:	bar / psi
Connection:	1/4" VFS Male / 1/4" VFS Female
Size:	2"
Accuracy:	$\pm 2.5\%$
Body Material:	316L
Switching function:	NC
Outlet type:	NAMUR
Temperature:	-25~100°C

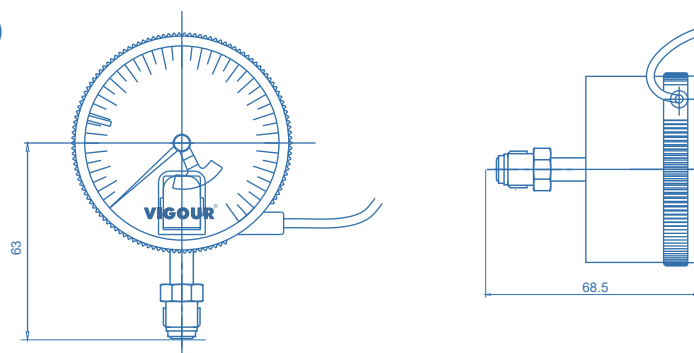


VGU



VRU

Dimensions (mm)



Ordering Information

VGU 20 SE - 400

Series

GU: radial direction
RU: axial direction

Material

S: 316L EP

Pressure Range

400: 0~400bar
250: 0~250bar
60: 0~60bar
25: 0~25bar

Contact Gauges

VCG20S/VRG20S Series

Product Features

- Contact gauge (KI) with inductance contact
- For monitoring gas supply pressure and shortage
- For inert, combustible, oxidizing, and corrosive gases and gas mixtures
- standard surface finish 10μin. (0.25μm) Ra
- internals are electropolished to optionally meet purrty standards
- 100% helium-leak-tested

Typical Applications

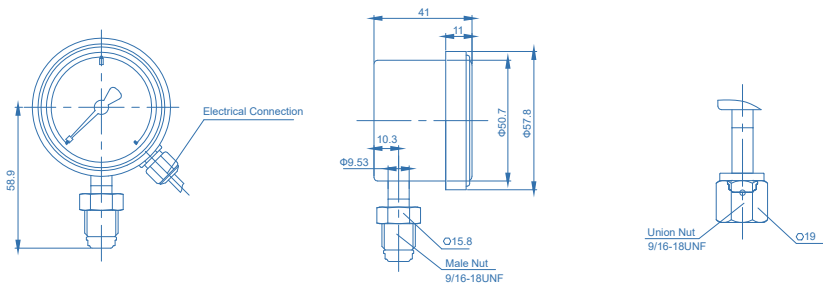
Gas panels may be optionally equipped with contact pressure gauges. Contact pressure gauges combine the advantages of in situ readings with the demands of electrical signal transmissions. In combination with signal boxes, this creates visual and acoustic warning signals in the case of pres-sure drop and the monitoring of line pressure according to adjustable thresholds.



Technical Data

Dual scale:	bar / psi
Connection:	VFS connection
Size:	2"
Accuracy:	Grade A per ASME B40.1
Body Material:	316L
Switching function:	NC / NO
Electrical rating	switching voltage ≤ AC 24V / DC 24V switching current ≤ 0.5A switching power ≤ 10VA / W

Dimensions (mm)



Ordering Information

VCG 20 S - 400	
Series	Pressure Range
CG: radial direction	400: 0~400bar
RG: axial direction	250: 0~250bar
	60: 0~60bar
	25: 0~25bar
	V2.5 : Vac~2.5 bar
	V4 : Vac~4 bar
	V7 : Vac~7 bar
	V10 : Vac~10 bar
	V16 : Vac~16 bar
	V25 : Vac~25 bar
Material	
S: 316L EP	

Conversion Factors

Pressure

	atm	bar	ft of H ₂ O	in of hg	in of H ₂ O	kg/cm ²	kPa	mm of Hg	PSI
MULTIPLY	BY								
atm	....	1.01325	33.932	29.921	407.1827	1.0332	101.3171	760	14.696
bar	0.98692	....	33.4883	29.530	401.8596	1.019716	100	750.062	14.50368
ft of H ₂ O	0.02947	0.029891	....	0.882646	12	0.03048	2.9890	22.4198	0.433107
in of hg	0.03342	0.033864	1.1340	....	13.6	0.034532	3.376895	25.4	0.49115
in of H ₂ O	0.00246	0.002499	0.083333	0.073556	....	0.00254	0.0249089	1.86832	0.03609
kg/cm ²	0.9678	0.980665	32.8084	28.95903	393.7008	....	98.03922	735.5592	14.22334
kPa	0.00987	0.010	0.33456	0.29613	4.01472	0.01020	....	7.5006	0.14504
mm of Hg	0.00132	0.001333	0.044603	0.03937	0.535240	0.001360	0.133322	....	0.019337
PSI	0.06805	0.068948	2.3089	2.0360	27.70851	0.070307	6.89465	51.175	....

Flow

	cm ³ /min	cm ³ /sec	ft ³ /hr	ft ³ /min	m ³ /hr	m ³ /min	L/hr	Lpm
MULTIPLY	BY							
cm ³ /min	....	0.0166667	0.0021189	0.0000353	0.00006	0.000001	0.06	0.001
cm ³ /sec	60	....	0.1271340	0.0021189	0.0036	0.00006	3.6	0.06
ft ³ /hr	471.9474	7.865790	....	0.0166667	0.0283168	0.0004719	28.31685	0.4719474
ft ³ /min	28,316.85	471.9474	60	....	1.699008	0.0283168	1699.008	28.31686
m ³ /hr	16,666.67	277.7778	35.31467	0.5885777	....	0.0166667	1000	16.66667
m ³ /min	1,000,000	16,666.67	2118.876	35.31467	60	....	60,000	1000
L/hr	16.66667	0.2777778	0.0353147	0.0005885	0.001	0.0000167	....	0.0166667
Lpm	1000	16.66667	2.118876	0.0353147	0.06	0.001	60	....

Density

	gms/cm ³	kg/m ³	lbs/ft ³	lbs/in ³	lbs/U.S. gal
MULTIPLY	BY				
gms/cm ³	....	1000	62.428	0.0361273	8.3454
kg/m ³	0.001	....	0.062428	3.61273 x 10 ⁻⁵	0.0083454
lbs/ft ³	0.0160185	16.018463	....	5.78704 x 10 ⁻⁴	0.13368
lbs/in ³	27.679905	27.679.9	1728	....	231
lbs/U.S. gal	0.1198264	119.8264	7.4805195	0.004329	....

Material Compatibility

Material Compatibility									
Process Gas	chemical formula	materials							
		metal			plastic			synthetic rubber	
		stainless steel	nickel	hastelloy	PCTFE	VESPEL	PFA	FKM	EPDM
Ammonia	NH ₃	1	1	1	1	3	1	3	1
Argon	Ar	1	1	1	1	1	1	1	1
Arsine	AsH ₃	1	2	2	1	0	1	1	0
Boron Trichloride	BCl ₃	2	1	1	1	2	1	1	0
Boron Trifluoride	BF ₃	2	1	1	1	0	1	1	0
Carbon Dioxide	CO ₂	1	1	1	1	1	1	2	2
Carbon Monoxide	CO	1	2	2	1	1	1	2	2
Carbon Tetrafluoride	CF ₄	1	1	1	1	0	1	1	0
Chlorine	Cl ₂	2	1	1	1	0	1	2	3
Diborane	B ₂ H ₆	1	2	0	1	0	1	0	0
Dichlorosilane	SiH ₂ Cl ₂	2	1	1	1	0	1	1	0
Fluorine	F ₂	2	1	1	1	0	1	1	0
Freon 23 Trifluoromethane	CHF ₃	1	1	1	1	0	1	1	0
Freon 116 Hexafluoroethane	C ₂ F ₆	1	1	0	1	0	1	1	0
Germane	GeH ₄	1	1	1	1	0	1	1	0
Helium	He	1	1	1	1	1	1	1	1
Hydrogen	H ₂	1	1	1	1	1	1	1	2
Hydrogen Bromide	HBr	2	1	1	1	0	1	1	0
Hydrogen Chloride	HCl	2	1	1	1	0	1	2	0
Hydrogen Fluoride	HF	2	1	1	1	0	1	1	3
Hydrogen Sulfide	H ₂ S	1	1	0	1	0	1	3	1
Krypton	Kr	1	1	1	1	1	1	1	1
Methane	CH ₄	1	1	0	1	1	1	3	2
Methyl Fluoride	CH ₃ F	1	1	0	1	0	1	1	0
Nitric Oxide	NO	1	1	1	1	0	1	1	0
Nitrogen	N ₂	1	1	1	1	1	1	1	1
Nitrogen Trifluoride	NF ₃	1	1	1	1	0	1	1	0
Nitrous Oxide	N ₂ O	1	1	1	2	1	2	1	1
Neon	Ne	2	2	1	1	1	1	1	1
Oxygen	O ₂	1	1	1	1	1	1	1	1
Ozone	O ₃	2	2	1	1	0	1	2	1
Perfluoropropane	C ₃ F ₈	1	1	1	1	1	1	1	0
Phosphine	PH ₃	1	2	2	1	1	1	1	0
Phosphorus Trifluoride	PF ₃	2	1	1	1	0	1	0	0
Silane	SiH ₄	1	1	1	1	1	1	1	2
Silicon Tetrachloride	SiCl ₄	2	1	1	1	0	1	0	0
Silicon Tetrafluoride	SiF ₄	2	1	1	1	0	1	0	1
Sulfur Hexafluoride	SF ₆	1	1	1	1	0	1	1	1
Tetraethyl Orthosilicate	TEOS	1	1	1	1	0	1	0	0
Trichlorosilane	SiHCl ₃	2	1	1	1	0	1	1	0
Tungsten Hexafluoride	WF ₆	2	1	1	1	0	1	0	0
Xenon	Xe	1	1	1	1	1	1	1	1

"0" no data / "1" recommend to use / "2" Part resistant, can be used / "3" Unavailable

Pressure Regulator and Valve Selection Guide

Process Gas	Max Flow (slpm)	Source Valves UA/UB/UC	Max Flow (slpm)	Distribution Valves UA/UB/UC	Max Flow (slpm)	Source Regulator UA/UB/UC	Max Flow (slpm)	Distribution Regulator UA/UB/UC
Acetylene (C ₂ H ₂)	200	VDV33 1/4"	25	VDV32 1/4"	3	VSR-510S	3	VSR-100S
			45	VDV32 1/2"	50	VSR-410S	6	VSR-100S HF
	280	VDV33 1/2"	400	VDV37 PC	75	VSR-210S	50	VSR-410S
				VDV37 M			75	VSR-210S
				VDV39			95	VSR-210S HF
Air	150	VDV33 1/4"	90	VDV32 1/4"	30	VSR-510S	30	VSR-100S
			160	VDV32 1/2"	100	VSR-510S HF	50	VSR-100S HF
	250	VDV33 1/2"		VDV37 M	200	VSR-410S	150	VSR-410S
			890	VDV37 PC	800	VSR-210S	400	VSR-210S
	500	VDV33 1/2"		VDV37 M			600	VSR-210S HF
				VDV39				
Ammonia (NH ₃)	250	VDV32 1/4"	100	VDV32 1/4"	5	VSR-510S	5	VSR-100S
		VDV33 1/4"			50	VSR-410S	30	VSR-100S HF
	450	VDV32 1/2"	225	VDV32 1/2"	75	VSR-210S	60	VSR-410S
					400	VSR-210S	125	VSR-210S
	1000	VDV38	1000	VDV37 PC	600	VSR-210S HF	250	VSR-210S HF
				VDV37 M	1100	VSR-910S	500	VSR-210S FC
				VDV39			1000	VSR-910S
Argon (Ar)	200	VDV33 1/4"	80	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					100	VSR-510S HF	25	VSR-100S HF
	350	VDV33 1/2"	150	VDV32 1/2"	250	VSR-510S HF	50	VSR-410S
		VDV33 1/4"			600	VSR-210S	100	VSR-210S
	1000	VDV38H	800	VDV37 PC			200	VSR-210S HF
				VDV37 M			400	VSR-210S FC
				VDV39			1000	VSR-910S
Arsine (AsH ₃)	140	VDV32 1/4"	55	VDV32 1/4"	5	VSR-510S	5	VSR-100S
		VDV33 1/4"			40	VSR-410S	20	VSR-100S HF
	240	VDV32 1/2"	95	VDV32 1/2"				
Arsine Mixtures (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	15	VSR-510S	15	VSR-100S
					50	VSR-510S HF	50	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"	150	VSR-410S	150	VSR-410S
		VDV33 1/4"						
Boron Trichloride (BCl ₃)	20	VDV32 1/2"	15	VDV32 1/2"	6	VSR-410S-VC2	6	VSR-410S-VC2
Boron Trichloride Mix (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	15	VSR-510S	15	VSR-100S
					60	VSR-410S	30	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"			60	VSR-410S
		VDV33 1/4"						
Boron Trifluoride (BF ₃)	115	VDV33 1/4"	60	VDV32 1/4"	5	VSR-510S	5	VSR-100S
					25	VSR-410S	10	VSR-100S HF
	145	VDV33 1/2"	100	VDV32 1/2"			25	VSR-410S
		VDV33 1/4"						
Boron 11 Trifluoride (11BF ₃)	115	VDV33 1/4"	60	VDV32 1/4"	5	VSR-510S	5	VSR-100S
					25	VSR-410S	10	VSR-100S HF
	145	VDV33 1/2"	100	VDV32 1/2"			25	VSR-410S
		VDV33 1/4"						
Butadiene (C ₄ H ₆)	60	VDV32 1/2"	60	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					40	VSR-410S	5	VSR-100S HF

Pressure Regulator and Valve Selection Guide

Butadiene (normal) (C4 H10)	60	VDV32 1/2"	60	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					40	VSR-410S	5	VSR-100S HF
Butene-1 (C4 H8)	65	VDV32 1/2"	60	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
Carbon Dioxide (CO2)	200	VDV33 1/4"	75	VDV32 1/4"	3	VSR-510S	8	VSR-100S
					75	VSR-410S	20	VSR-100S HF
	500	VDV33 1/2"	140	VDV32 1/2"	150	VSR-210S VS	40	VSR-410S
					500	VSR-210S VS	100	VSR-210S
	2500	VDV38H	750	VDV37 PC		VSR-210S HF VS	160	VSR-210S HF
				VDV37 M	1000	VSR-910S VS	325	VSR-210S FC
Carbon Monoxide (CO)				VDV39			800	VSR-910S
	185	VDV33 1/4"	90	VDV32 1/4"	5	VSR-510S	5	VSR-100S
					15	VSR-510S HF	15	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"	50	VSR-410S	50	VSR-410S
Chlorine (Cl2)		VDV33 1/4"						
	75	VDV32 1/4"	50	VDV32 1/4"	3	VSR-510SH	5	VSR-510H
		VDV33 1/4"			50	VSR-410S	15	VSR-510H HF
	150	VDV32 1/2"	100	VDV32 1/2"	75	VSR-210SH	30	VSR-410SH
					200	VSR-210SH HF	75	VSR-210SH
	300	VDV38	400	VDV37 PC			125	VSR-210SH HF
Chlorine Trifluoride (ClF3)				VDV37 M				
				VDV39			250	VSR-210SH FC
	20	VDV32 1/2"	15	VDV32 1/2"	6	VSR-410S-VC2	6	VSR-410S-VC2
Diborane Mixtures (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	5	VSR-710S	10	VSR-100S
							20	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"				
Dichlorosilane (SiH2 Cl2)		VDV33 1/4"						
	20	VDV32 1/2"	20	VDV32 1/2"	7	VSR-410S-VC2	7	VSR-410S-VC2
Diethyltelluride (Te(C2 H5)2)	70	VDV33 1/4"	35	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					5	VSR-510S HF	5	VSR-100S HF
	85	VDV33 1/2"	60	VDV32 1/2"	25	VSR-410S	25	VSR-410S
		VDV33 1/4"						
Difluoroethylene (C2 H2 F2)	140	VDV33 1/4"	55	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	6	VSR-100S HF
	200	VDV33 1/2"	100	VDV32 1/2"	75	VSR-210S	50	VSR-410S
		VDV33 1/4"					75	VSR-210S
Dimethylsilane (C2 SiH8)	14	VDV32 1/2"	7	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	50	VSR-410S
	150	VDV37 PC	75	VDV37 PC	75	VSR-210S	75	VSR-210S
		VDV37 M		VDV37 M				
Disilane (Si2 H6)	14	VDV32 1/2"	7	VDV32 1/2"	1	VSR-100S	1	VSR-100S
					7	VSR-410S-VC2	7	VSR-410S-VC2
Ethylene (C2 H4)	380	VDV33 1/4"	90	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
	485	VDV33 1/2"	160	VDV32 1/2"	75	VSR-210S	50	VSR-410S
		VDV33 1/4"					75	VSR-210S
Fluorine (F2)	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory

Pressure Regulator and Valve Selection Guide

Process Gas	Max Flow (slpm)	Source Valves UA/UB/UC	Max Flow (slpm)	Distribution Valves UA/UB/UC	Max Flow (slpm)	Source Regulator UA/UB/UC	Max Flow (slpm)	Distribution Regulator UA/UB/UC
Fluorine Mixtures (20% maximum F2)	185	VDV33 1/4"	90	VDV32 1/4"	5	VSR-510SH	5	VSR-510H
					50	VSR-510SH HF	10	VSR-510H HF
	225	VDV33 1/2"	160	VDV32 1/2"			50	VSR-410SH
		VDV33 1/4"						
Germane (GeH4)	10	VDV32 1/4"	4	VDV32 1/4"	1	VSR-100S	1	VSR-100S
		VDV33 1/4"			7	VSR-410S-VC2	7	VSR-410S-VC2
	18	VDV32 1/2"	7	VDV32 1/2"				
Germane Mixtures (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					20	VSR-510S HF	20	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"	50	VSR-410S	50	VSR-410S
		VDV33 1/4"						
Halocarbon 12 (CCl2 F2)	55	VDV32 1/2"	40	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
							50	VSR-410S
Halocarbon 12B2 (CBr2 F2)	15	VDV32 1/2"	15	VDV32 1/2"	5	VSR-410SA	5	VSR-410S-VC2
Halocarbon 13 (CClF3)	140	VDV33 1/4"	40	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
	170	VDV33 1/2"	70	VDV32 1/2"			50	VSR-410S
		VDV33 1/4"						
Halocarbon 13B1 (CBrF3)	110	VDV32 1/4"	35	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
	190	VDV32 1/2"	65	VDV32 1/2"			50	VSR-410S
Halocarbon 14 (CF4)	10	VDV33 1/4"	50	VDV32 1/4"	10	VSR-510S	5	VSR-100S
					40	VSR-510S HF	15	VSR-100S HF
	200	VDV33 1/2"	100	VDV32 1/2"	80	VSR-510S HF	30	VSR-410S
		VDV33 1/4"			500	VSR-210S	60	VSR-210S
	600	VDV38H	500	VDV37 PC			100	VSR-210S HF
				VDV37 M			250	VSR-210S FC
				VDV39			500	VSR-910S
Halocarbon 21 (CHCl2F)	25	VDV32 1/2"	15	VDV32 1/2"	5	VSR-410S-VC2	5	VSR-410S-VC2
Halocarbon 23 (CHF3)	115	VDV33 1/4"	145	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					50	VSR-410S	20	VSR-100S HF
	140	VDV33 1/2"	250	VDV32 1/2"			50	VSR-410S
		VDV33 1/4"						
Halocarbon 32 (CH2 F2)	140	VDV33 1/4"	55	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	6	VSR-100S HF
	175	VDV33 1/2"	100	VDV32 1/2"	75	VSR-210S	50	VSR-410S
							75	VSR-210S
Halocarbon 114 (C2 ClF4)	30	VDV32 1/2"	25	VDV32 1/2"	7	VSR-410S-VC2	1	VSR-100S
							7	VSR-410S-VC2
Halocarbon 115 (C2 ClF5)	60	VDV32 1/2"	40	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
					75	VSR-210S	50	VSR-410S
							75	VSR-210S
Halocarbon 116 (C2 F6)	60	VDV33 1/4"	40	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	10	VSR-100S HF
	100	VDV33 1/2"	80	VDV32 1/2"	75	VSR-210S	25	VSR-410S
		VDV33 1/4"			125	VSR-210S HF	50	VSR-210S
	275	VDV38	400	VDV37 PC			90	VSR-210S HF
				VDV37 M				
				VDV39			175	VSR-210S FC
						450	VSR-910S	

Pressure Regulator and Valve Selection Guide

Process Gas	Max Flow (slpm)	Source Valves UA/UB/UC	Max Flow (slpm)	Distribution Valves UA/UB/UC	Max Flow (slpm)	Source Regulator UA/UB/UC	Max Flow (slpm)	Distribution Regulator UA/UB/UC
Halocarbon 125 (C2 HF5)	180	VDV32 1/2"	70	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					25	VSR-410S	5	VSR-100S HF
					75	VSR-210S	25	VSR-410S
							75	VSR-210S
Halocarbon 134A (C2 H2 F4)	55	VDV32 1/2"	40	VDV32 1/2"	3	VSR-510S	3	VSR-100S
		VDV38			50	VSR-410S	5	VSR-100S HF
					75	VSR-210S	50	VSR-410S
	350	VDV37 PC	230	VDV37 PC			75	VSR-210S
		VDV37 M		VDV37 M				
Halocarbon R218 (C2 F8)	35	VDV32 1/4"	20	VDV32 1/4"	3	VSR-510S	3	VSR-100S
		VDV33 1/4"			50	VSR-410S	5	VSR-100S HF
	60	VDV32 1/2"	40	VDV32 1/2"	75	VSR-210S	50	VSR-410S
							75	VSR-210S
Halocarbon C318 (C4 F8)	25	VDV32 1/2"	20	VDV32 1/2"	6	VSR-410S-VC2	6	VSR-410S-VC2
Halocarbon C1418 (Octafluorocyclopentene) (C5 F8)	7	VDV32 1/2"	7	VDV32 1/2"	3	VSR-410S-VC2	N/A	Regulator not required
Helium (He)	750	VDV33 1/4"	250	VDV32 1/4"	125	VSR-510S	65	VSR-100S
					500	VSR-510S HF	125	VSR-100S HF
	1000	VDV33 1/2"	450	VDV32 1/2"	2000	VSR-210S	275	VSR-410S
							625	VSR-210S
	2500	VDV38H	2500	VDV37 PC			900	VSR-210S HF
				VDV37 M			1200	VSR-210S FC
				VDV39			2500	VSR-910S
Hexafluoropropane (C3 H2 F6)	20	VDV32 1/2"	15	VDV32 1/2"	6	VSR-410S-VC2	6	VSR-410S-VC2
Hexafluoropropylene (C3 F6)	60	VDV32 1/2"	40	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	5	VSR-100S HF
					75	VSR-210S	50	VSR-410S
							75	VSR-210S
Hydrogen (H2)	800	VDV33 1/4"	300	VDV32 1/4"	125	VSR-510S	65	VSR-100S
					500	VSR-510S HF	125	VSR-100S HF
	1600	VDV33 1/2"	600	VDV32 1/2"	1200	VSR-210S	275	VSR-410S
		VDV33 1/4"					625	VSR-210S
	3000	VDV33 1/4"	3000	VDV33 1/4"			900	VSR-210S HF
		VDV38H		VDV37 PC				
				VDV37 M			1200	VSR-210S FC
				VDV39			3000	VSR-910S
Hydrogen Bromide (HBr)	155	VDV33 1/4"	55	VDV32 1/4"	1	VSR-510SH	1	VSR-510H
					30	VSR-410S	2	VSR-510H HF
	190	VDV33 1/2"	95	VDV32 1/2"	50	VSR-210SH	30	VSR-410S
		VDV33 1/4"					50	VSR-210SH
Hydrogen Chloride (HCl)	350	VDV33 1/4"	75	VDV32 1/4"	2	VSR-510SH	8	VSR-510H
					90	VSR-410S	20	VSR-510H HF
	500	VDV33 1/2"	150	VDV32 1/2"	150	VSR-210SH	40	VSR-410SH
		VDV33 1/4"			600	VSR-210SH HF	85	VSR-210SH
	2000	VDV38	850	VDV37 PC	2000	VSR-910S	160	VSR-210SH HF
				VDV37 M			300	VSR-210SH FC
				VDV39			800	VSR-910SH

Pressure Regulator and Valve Selection Guide

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Process Gas	Max Flow (slpm)	Source Valves UA/UB/UC	Max Flow (slpm)	Distribution Valves UA/UB/UC	Max Flow (slpm)	Source Regulator UA/UB/UC	Max Flow (slpm)	Distribution Regulator UA/UB/UC
Nitrogen Dioxide (NO ₂)	60	VDV32 1/2"	60	VDV32 1/2"	4	VSR-510S	4	VSR-100S
					45	VSR-410S	6	VSR-100S
Nitrogen Trifluoride (NF ₃)	75	VDV33 1/4"	60	VDV32 1/4"	5	VSR-510S	6	VSR-100S
					60	VSR-410S	15	VSR-100S HF
	100	VDV33 1/2"	110	VDV32 1/2"	150	VSR-410S	30	VSR-410S
		VDV33 1/4"			400	VSR-210S	75	VSR-210S
	350	VDV38H	500	VDV37 PC	1000	VSR-910S	125	VSR-210S HF
		VDV38H		VDV37 M			250	VSR-210S FC
				VDV39			600	VSR-910S
Nitric Oxide (NO)	310	VDV33 1/4"	75	VDV32 1/4"	3	VSR-510S	3	VSR-100S
					50	VSR-410S	6	VSR-100S HF
	380	VDV33 1/2"	125	VDV32 1/2"	75	VSR-210S	50	VSR-410S
		VDV33 1/4"					75	VSR-210S
Nitrous Oxide (N ₂ O)	300	VDV33 1/4" VS	70	VDV32 1/4" VS	3	VSR-510S VS	8	VSR-100S VS
					60	VSR-410S VS	20	VSR-100S HF VS
	500	VDV33 1/2" VS	140	VDV32 1/2" VS	100	VSR-210S VS	35	VSR-410S VS
					150	VSR-210S HF VS	85	VSR-210S VS
	1500	VDV38 VS	750	VDV37 PC VS	500	VSR-210S HF VS	160	VSR-210S HF VS
				VDV37 M VS	1000	VSR-910S VS	320	VSR-210S FC VS
				VDV39 VS			800	VSR-910S VS
Oxygen (O ₂)	250	VDV33 1/4"	75	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					80	VSR-510S HF	25	VSR-100S HF
	400	VDV33 1/2"	150	VDV32 1/2"	150	VSR-510S HF	50	VSR-410S
		VDV33 1/4"			1000	VSR-210S	120	VSR-210S
			1000	VDV37 PC			200	VSR-210S HF
				VDV37 M			400	VSR-210S FC
				VDV39			1000	VSR-910S
Perfluoropropane (C ₃ F ₈)	70	VDV32 1/4"	35	VDV32 1/4"	2	VSR-510S	2	VSR-100S
		VDV33 1/4"			20	VSR-410S	4	VSR-100S HF
	125	VDV32 1/2"	60	VDV32 1/2"			20	VSR-410S
Perfluorobutadiene (C ₄ F ₆)	25	VDV32 1/2"	25	VDV32 1/2"	5	VSR-410S-VC2	5	VSR-410S-VC2
Phosphine (PH ₃)	320	VDV33 1/4"	80	VDV32 1/4"	5	VSR-510S	5	VSR-100S
					40	VSR-410S	10	VSR-100S HF
	390	VDV33 1/2"	145	VDV32 1/2"				
		VDV33 1/4"						
Phosphine Mixtures (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					20	VSR-510S HF	20	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"				
Phosphorous Pentafluoride (PF ₅)		VDV33 1/4"						
	15	VDV33 1/4"	5	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					20	VSR-510S HF	20	VSR-100S HF
	19	VDV33 1/2"	9	VDV32 1/2"				
		VDV33 1/4"	52	VDV37 PC				
Propane (C ₃ H ₈)		VDV38H		VDV37 M				
				VDV39				
	65	VDV32 1/4"	42	VDV32 1/4"	3	VSR-510S	3	VSR-100S
		VDV33 1/4"			50	VSR-410S	5	VSR-100S HF
	115	VDV32 1/2"	75	VDV32 1/2"		VSR-210S	50	VSR-410S

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Process Gas	Max Flow (slpm)	Source Valves UA/UB/UC	Max Flow (slpm)	Distribution Valves UA/UB/UC	Max Flow (slpm)	Source Regulator UA/UB/UC	Max Flow (slpm)	Distribution Regulator UA/UB/UC
Propane (C3H6)	185	VDV32 1/4"	75	VDV32 1/4"	3	VSR-510S	3	VSR-100S
		VDV33 1/4"			50	VSR-410S	5	VSR-100S HF
	320	VDV32 1/2"	125	VDV32 1/2"			50	VSR-410S
Silane (SiH4)	150	VDV33 1/4"	75	VDV32 1/4"	5	VSR-510S	10	VSR-100S
					40	VSR-410S	25	VSR-100S HF
	250	VDV33 1/2"	150	VDV32 1/2"	50	2700S	50	VSR-410S
		VDV33 1/4"			60	VSR-210S	120	VSR-210S
	600	VDV38H	750	VDV37 PC	100	VSR-210S HF	200	VSR-210S HF
		VDV38H		VDV37 M	500	VSR-210S & VSR-210S HF	400	VSR-210S FC
				VDV39			1000	VSR-910S
Silane Mixtures (Nitrogen Balance)	185	VDV33 1/4"	90	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					20	VSR-510S HF	20	VSR-100S HF
	225	VDV33 1/2"	160	VDV32 1/2"	40	VSR-410S	40	VSR-410S
		VDV33 1/4"						
Silicon Tetrachloride (SiCl4)	10	VDV32 1/2"	10	VDV32 1/2"	2	VSR-410S-VC2	2	VSR-410S-VC2
Silicon Tetrafluoride (SiF4)	95	VDV33 1/4"	45	VDV32 1/4"	10	VSR-510S	10	VSR-100S
					40	VSR-410S	20	VSR-100S HF
	115	VDV33 1/2"	80	VDV32 1/2"			40	VSR-410S
		VDV33 1/4"						
Sulfur Dioxide (SO2)	80	VDV32 1/2"	30	VDV32 1/2"	1	VSR-100S	6	VSR-410S-VC2
					6	VSR-410S-VC2		
Sulfur Hexafluoride (SF6)	125	VDV33 1/4"	35	VDV32 1/4"	3	VSR-510S	5	VSR-100S
					40	VSR-410S	12	VSR-100S HF
	200	VDV33 1/2"	75	VDV32 1/2"	60	VSR-210S	25	VSR-410S
		VDV33 1/4"			150	VSR-210S HF	60	VSR-210S
	500	VDV38	400	VDV37 PC	500	VSR-910S	90	VSR-210S HF
				VDV37 M			180	VSR-210S FC
				VDV39			400	VSR-910S
Sulfur Tetrafluoride (SF4)	200	VDV32 1/2"	80	VDV32 1/2"	3	VSR-510S	3	VSR-100S
					15	VSR-410S	5	VSR-100S HF
							15	VSR-410S
Trichlorosilane (SiHCl3)	35	VDV32 1/2"	30	VDV32 1/2"	10	VSR-410S-VC2	10	VSR-410S-VC2
Trimethylsilane ((CH3)3SiH)	30	VDV32 1/2"	25	VDV32 1/2"	7	VSR-410S-VC2	7	VSR-410S-VC2
Tungsten Hexafluoride (WF6)	10	VDV32 1/2"	10	VDV32 1/2"	5	VSR-410S-VC2	5	VSR-410S-VC2
Xenon (Xe)	85	VDV33 1/4"	40	VDV32 1/4"	5	VSR-510S	5	VSR-100S
					25	VSR-410S	10	VSR-100S
	100	VDV33 1/2"	70	VDV32 1/2"			25	VSR-410S
		VDV33 1/4"						

Product Warranty Service

1. Warranty Term

One year after purchase. For any malfunction of a product purchased from VIGOUR that occurs during the warranty term as a result of failure, at the time of delivery, to fulfill the specifications intended, VIGOUR will repair or replace the product at no charge.

2. Range of Warranty

The warranty is limited to our products that were produced at and delivered from our VIGOUR.

Regardless of the warranty term, this warranty does not cover troubles or accidents, or any customer's opportunity loss, lost profit, secondary damage or damage to anything other than our products, as well as replacement work, readjustment of local machinery or equipment or trial operation by the customer. Safety management associated with the use of a product purchased from VIGOUR and peripheral equipment will be the responsibility of the user.

[Exclusions]

The warranty does not cover any of the following cases, even if it occurs during the term of the warranty.

- 1) Cases where failure occurs resulting from the replacement (maintenance) of parts by a person other than a VIGOUR engineer.
- 2) Cases where failure occurs due to a natural disaster or force majeure.
- 3) Cases where failure occurs due to misuse of the product or not taking the required precautions in handling the product.
- 4) Cases where the product is used or stored in an unsuitable environment.
- 5) Cases where the product is used for purposes other than the designated objectives, the product is used at a range exceeding the range of conditions specified in the design, or a purchased product is modified.
- 6) Cases where corrosion and failure occurs due to external factors or a corrosive liquid.
- 7) Any other case judged to be outside of the responsibility of VIGOUR.

VIGOUR

we offer solutions regarding your ideas!

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