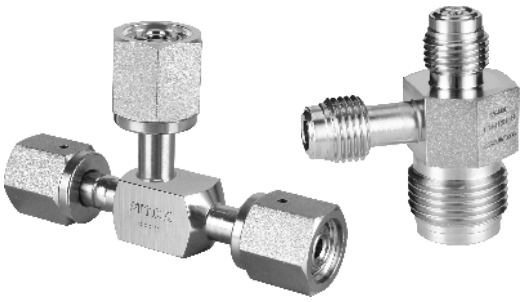
Vacuum Generators

VGB and VGM Series

Introduction

VGB and VGM series vacuum generators are designed to create a vacuum and establish suction for purging piping systems,which are widely used in the semiconductor industry. The inlet and vent ports of the VGB series offer multiple options, while the VGM series specifies the sizes and types of inlet and vent ports.



Features

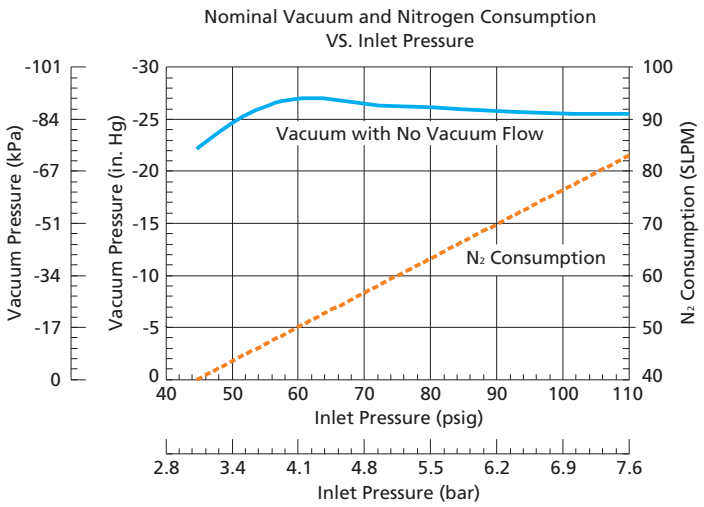
◎ All welded construction improves sealing performance and service life
◎ Wetted surface roughness machine finished to Ra 15 µin. (0.38 µm)
◎ Ultrasonic and DI water cleaned for semiconductor ultra-high purity
◎ Final packaging in ISO calss 4 (FS 209E class 10 equivalent)

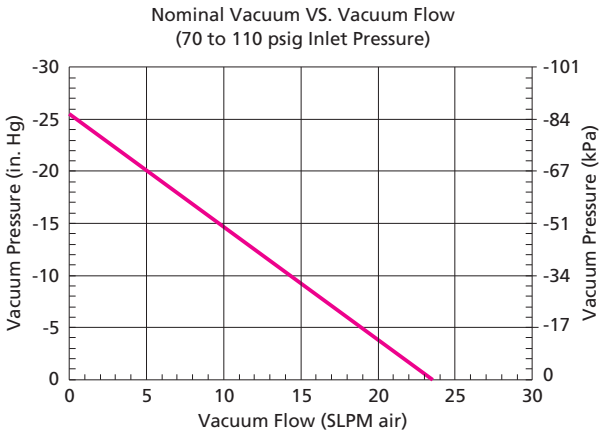
Technical Data

N_2 Inlet Pressure		70 ~ 110 psig (4.8 ~ 7.6 bar)
Vacuum Maximum		-26 in. Hg (-88 kPa)
Working Temperature		-40 ~ 160 °F (-40 ~ 71 °C)
Vacuum Port Maximum Pressure		3500 psig (241 bar)
Proof Pressure (Vacuum)		5250 psig (345 bar)
Burst Pressure (Vacuum)		10500 psig (690 bar)
Leak Rate (Helium)	**Inboard**	$\leqslant 2x10^{-10}$ std cm^3/s
	Outboard	

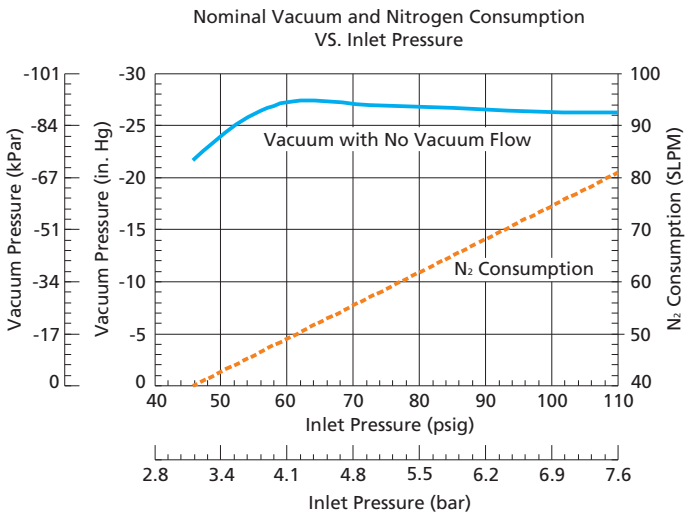
Exhaust and Flow Specification

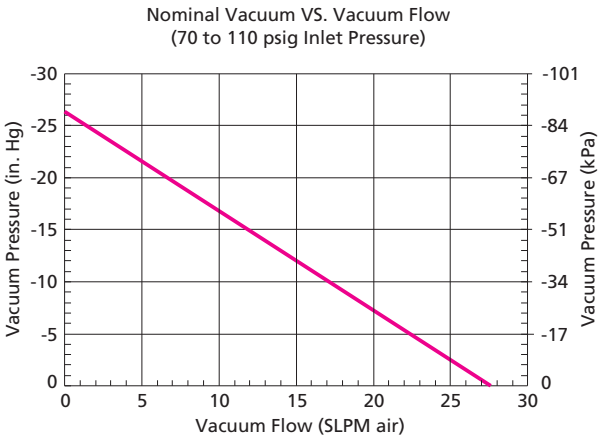
VGB Series





VGM Series

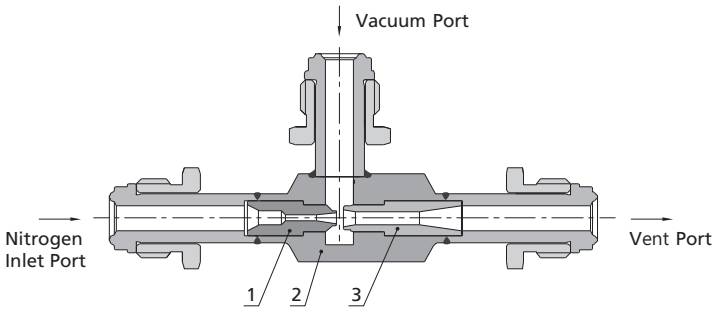




Note: Achieved vacuum level with the characteristics described above produces abnormal noise (soft clicking sound) at supply pressure (around 4 bar) just before reaching the peak value. When this abnormal noise occurs, the characteristics become unstable and operation becomes louder. Increase the supply pressure within the specification range, as it may affect the sensor, etc., and cause trouble.

Construction

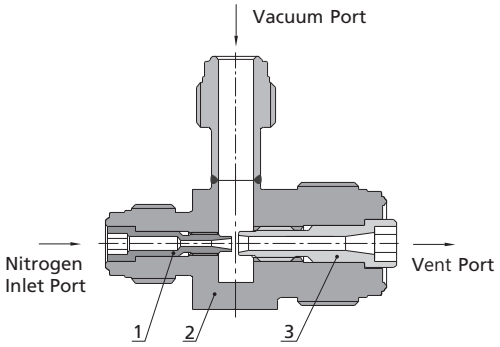
VGB Series



Item	Componet	Material/Specification
1	*Nozzle*	*316L SS/SEMI F20*
2	*Body*	
3	*Diffuser*	

Note: Components in contact with the media are listed in italics.

VGM Series



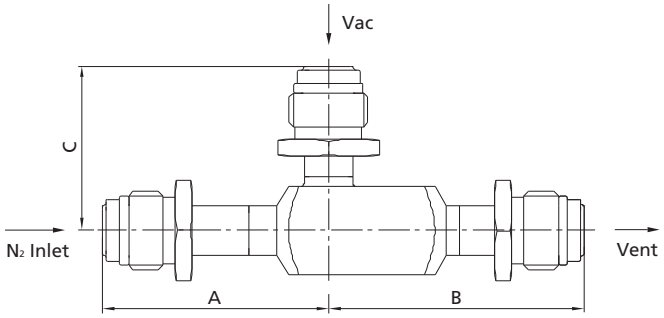
Item	Componet	Material/Specification
1	*Nozzle*	*316L SS/SEMI F20*
2	*Body*	
3	*Diffuser*	

Note: Components in contact with the media are listed in italics.

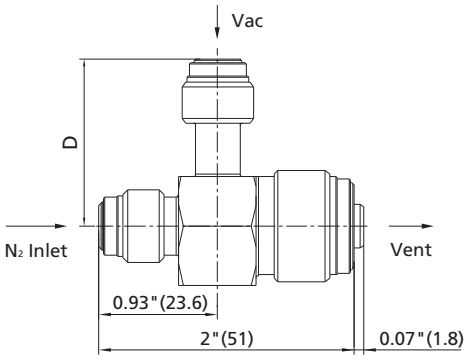
Dimensions and Ordering Information

Dimensions in in. (mm) are for reference only and subject to change.

VGB Series



VGM Series



Connection	A in. (mm)	B in. (mm)	C in. (mm)
RFR4/FFR4	1.62 (41)	1.83 (46)	1.18 (30)
TB4	1.25 (32)	1.46 (37)	0.81 (21)
TB6	1.25 (32)	1.46 (37)	0.81 (21)
RFR8/FFR8	2.13 (54)	2.34 (59)	1.69 (43)

Notes:
1. Optional connections and face to face dimensions available.
2. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Connection	D in. (mm)
FR4/FFR4/RFR4	1.31 (33)
TB4	0.97 (25)
TB6	0.97 (25)
FR8/FFR8/RFR8	1.85 (47)

Note:
VGM series is only available with FR4 inlet port and FR8 vent port.

Ordering Number Description

VGB6L - 3PM - FFR4 - RFR4 - FFR4 - F3

Series	Body Material	Port Number	Inlet	Vent	Vacuum	Process Specification
VGB	6L 316L SS	3PM 3 Port	FFR4 1/4" Rotatable Female FR Metal Gasket Face Seal Fitting RFR4 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting TB4 1/4" Tube Butt Weld TB6 3/8" Tube Butt Weld FFR8 1/2" Rotatable Female FR Metal Gasket Face Seal Fitting RFR8 1/2" Rotatable Male FR Metal Gasket Face Seal Fitting			F3 FC-03

Notes:
1. Inlet, vent, and vacuum ports are separate selections and should be listed independently, even if they are the same port type and size.
2. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

VGM6L - 3PM - FR4 - FR8 - FR4 - F3

Series
VGM

Body Material	
6L	316L SS

Port Number	
3PM	3 Port

Inlet	
FR4	1/4" Integral Male FR Metal Gasket Face Seal Fitting

Vent	
FR8	1/2" Integral Male FR Metal Gasket Face Seal Fitting

Vacuum	
FR4	1/4" Integral Male FR Metal Gasket Face Seal Fitting
FFR4	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting
RFR4	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting
TB4	1/4" Tube Butt Weld
TB6	3/8" Tube Butt Weld
FR8	1/2" Integral Male FR Metal Gasket Face Seal Fitting
FFR8	1/2" Rotatable Female FR Metal Gasket Face Seal Fitting
RFR8	1/2" Rotatable Male FR Metal Gasket Face Seal Fitting

Process Specification	
F3	FC-03

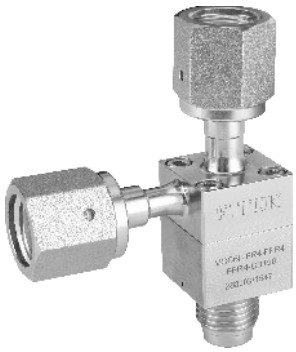
Note:
"Ordering Number Description" is a reference to understand the combination rules of FITOK product part number.
Not all combinations are available.

Vacuum Generators

VGC Series

Introduction

VGC series vacuum generators are designed to create a vacuum and establish suction to purge piping systems,which are widely used in the semiconductor industry. The VGC series integrate vacuum venturi,air actuated valve and check valve to provide a compact design.



Features

- ◎ Air actuated valve controls the nitrogen supply to the vacuum venturi
- ◎ Check valve prevents backflow into the nitrogen supply
- ◎ Constant bleed option provides a continuous supply of inert gas, ensuring that the vent line remains filled with inert gas
- ◎ Ultrasonic and DI water cleaned to ensure high purity

Technical Data

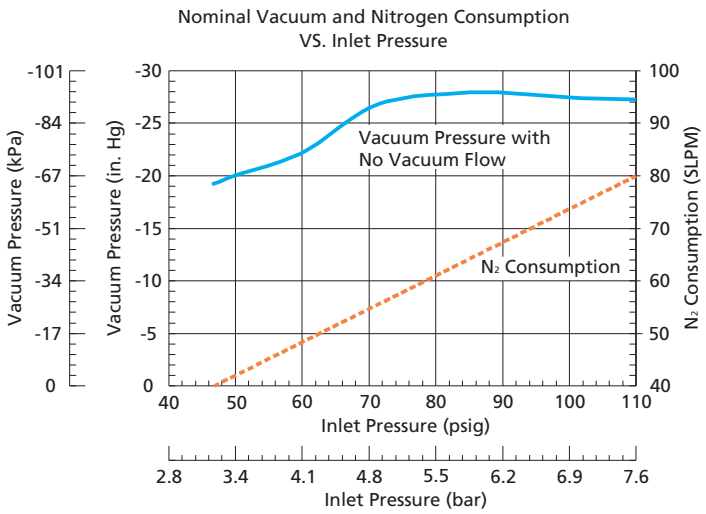
N_2 Inlet Pressure		70 ~ 110 psig (4.8 ~ 7.6 bar)
Vacuum Maximum		-26 in. Hg (-88 kPa)
Working Temperature		14 ~ 160 °F (-10 ~ 71 °C)
Vacuum Port Maximum Pressure		3500 psig (241 bar)
Proof Pressure (Vacuum)		5250 psig (345 bar)
Burst Pressure (Vacuum)		10500 psig (690 bar)
Leak Rate		Bubble Tight
Cracking Pressure①(Check Valve)		3 psig (0.2 bar) Differential
Cracking Pressure (Air-Actuated Valve)		60 ~ 110 psig (4 ~ 7.6 bar)
Constant Bleed ②	**CB025**	1 ~ 2.5 slpm @ 80 psig (5.5 bar) N_2
	CB050	2 ~ 5 slpm @ 80 psig (5.5 bar) N_2
	CB080	5 ~ 8 slpm @ 80 psig (5.5 bar) N_2
	CB150	10 ~ 15 slpm @ 80 psig (5.5 bar) N_2

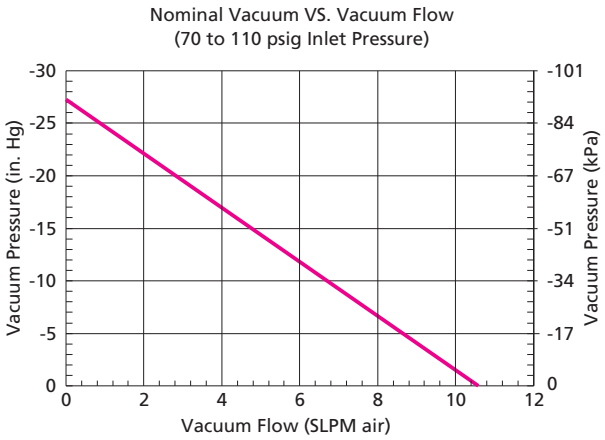
Notes:
① Cracking pressure is a nominal value which may vary in specific applications.
② Constant bleed option includes additional check valve for bleed orifice.

Other Parameters

Pneumatic Valve	Normally Closed (NC)
Air-Actuated Valve Control Port	M5 Thread
Inlet Port Fitting	1/4 inch Face Seal Male
Vent Port Fitting	1/4 inch, 1/2 inch Face Seal or 3/8 inch Fractional Tube Butt Weld
Vacuum Port Fitting	1/4 inch Face Seal or Fractional Tube Butt Weld

Exhaust and Flow Specification

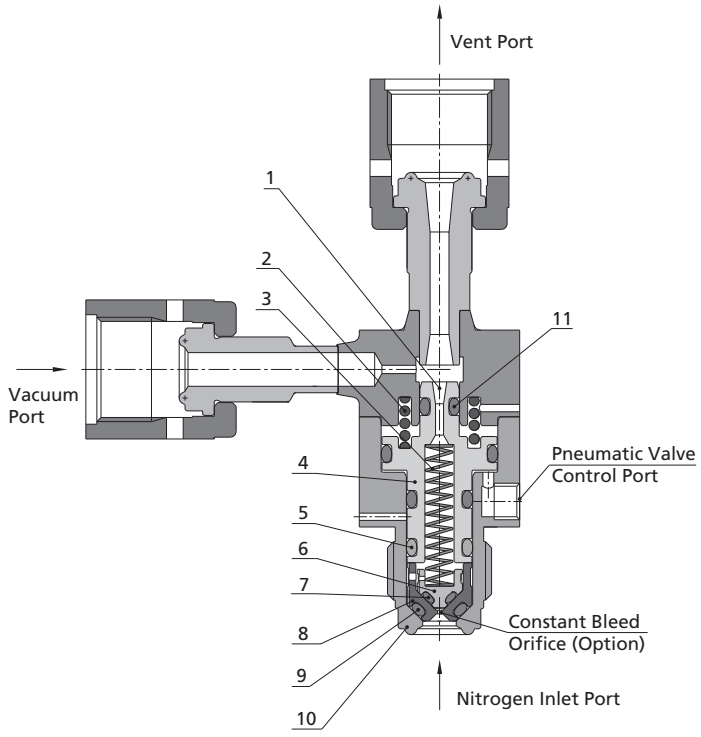




Notes:

1. Achieved vacuum level with the characteristics described above produces abnormal noise (soft clicking sound) at supply pressure (around 4.8 bar) just before reaching the peak value. When this abnormal noise occurs, the characteristics become unstable and operation becomes louder. Increase the supply pressure within the specification range, as it may affect the sensor, etc., and cause trouble.
2. N_2 inlet pressure greater than 110 psig (7.6 bar) may cause valve not to close when actuation control pressure vented.

Construction

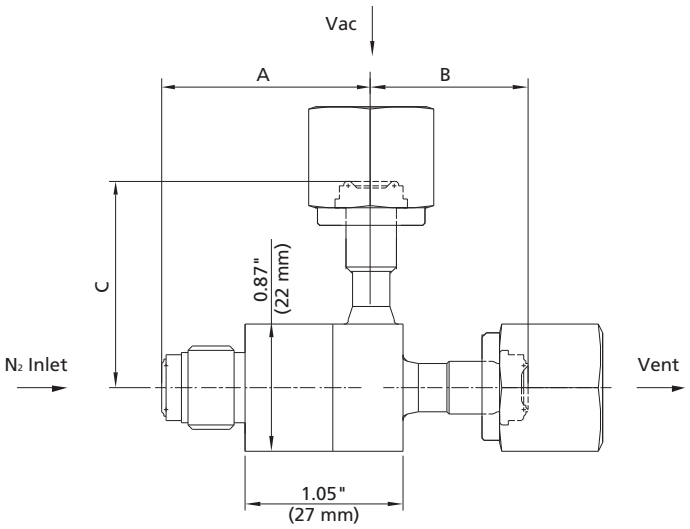


Item	Component	Material
1	*Vacuum Venturi*	*316L*
2	Valve Actuator Spring	304
3	*Check Valve Spring*	*304*
4	*Valve Actuator Piston*	*316L*
5	*O-ring*	*FKM or Neoprene*
6	*Constant Bleed Check Valve Poppet*	*316L*
7	*O-ring*	*FKM or Neoprene*
8	*Primary Check Valve Poppet*	*316L*
9	*O-ring*	*FKM or Neoprene*
10	*Body*	*316L*
11	*O-ring*	*FKM or Neoprene*

Note: Components in contact with the media are listed in italics.

Dimensions and Ordering Information

Dimensions in in. (mm) are for reference only and subject to change.



Ordering Number	Inlet Connection	Vent Connection	Vacuum Connection	A in. (mm)	B in. (mm)	C in. (mm)
VGC6L-FR4-RFR4-RFR4-	FR4	RFR4	RFR4	1.43 (36.4)	1.07 (27.2)	1.39 (35.3)
VGC6L-FR4-RFR4-FFR4-			FFR4			1.39 (35.3)
VGC6L-FR4-RFR4-TB4-			TB4			0.75 (19.1)
VGC6L-FR4-FFR4-RFR4-		FFR4	RFR4		1.07 (27.2)	1.39 (35.3)
VGC6L-FR4-FFR4-FFR4-			FFR4			1.39 (35.3)
VGC6L-FR4-FFR4-TB4-			TB4			0.75 (19.1)
VGC6L-FR4-TB6-RFR4-		TB6	RFR4		0.96 (24.4)	1.39 (35.3)
VGC6L-FR4-TB6-FFR4-			FFR4			1.39 (35.3)
VGC6L-FR4-TB6-TB4-			TB4			0.75 (19.1)
VGC6L-FR4-FR8-RFR4-		FR8	RFR4		1.64 (41.7)	1.39 (35.3)
VGC6L-FR4-FR8-FFR4-			FFR4			1.39 (35.3)
VGC6L-FR4-FR8-TB4-			TB4			0.75 (19.1)
VGC6L-FR4-FFR8-RFR4-		FFR8	RFR4		1.64 (41.7)	1.39 (35.3)
VGC6L-FR4-FFR8-FFR4-			FFR4			1.39 (35.3)
VGC6L-FR4-FFR8-TB4-			TB4			0.75 (19.1)

Notes:
FITOK has product options and combinations which are not documented in data sheets. If you have a model number that is not defined by the ordering information, please consult the factory or your local representative.

Ordering Number Description

VGC6L - FR4 - RFR4 - FFR4 - CB050 - N - F2

Series
VGC

Body Material	
6L	316L SS

Inlet	
FR4	1/4" Integral Male FR Metal Gasket Face Seal Fitting

Vent	
RFR4	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting
FFR4	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting
TB6	3/8" Fractional Tube Butt Weld
FR8	1/2" Integral Male FR Metal Gasket Face Seal Fitting
FFR8	1/2" Rotatable Female FR Metal Gasket Face Seal Fitting

Vacuum	
RFR4	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting
FFR4	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting
TB4	1/4" Fractional Tube Butt Weld

Options	
	No Bleed
CB025	2.5 SLPM
CB050	5 SLPM
CB080	8 SLPM
CB150	15 SLPM

Wetted Seals	
	FKM
N	Neoprene

Process Specification	
F2	FC-02

Note:
"Ordering Number Description" is a reference to understand the combination rules of FITOK product part number.
Not all combinations are available.