

# 2028/2048 SERIES

Ultra-High Purity Bar Stock Stainless Steel  
Vacuum Generator and Check Valve Series



# 2028 SERIES

## 2028 Series Product Applications

This stainless steel vacuum generator series is nitrogen operated and available with single parts design.

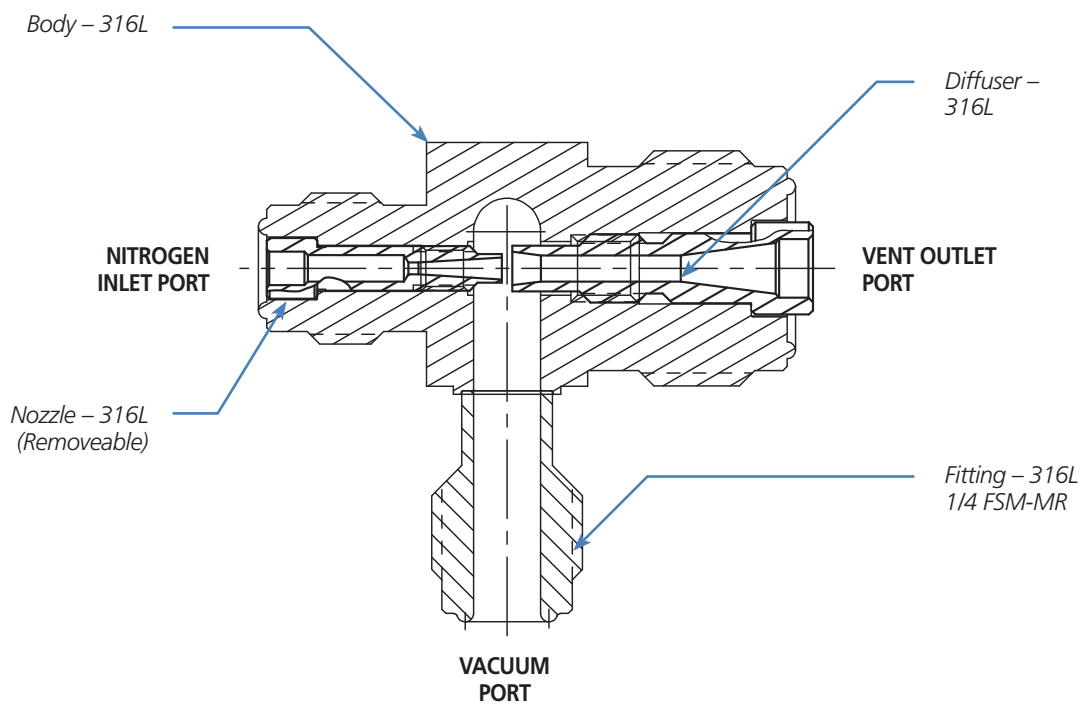
Applications for this generator include:

- Primary vacuum generation in gas cabinets
- Chamber evacuation for semiconductor manufacture
- Dilution of vented gases

## 2028 Series Product Features

- High Performance, Compact Design
- Lowest Nitrogen Consumption to Obtain Max. Vacuum
- Compatible with Standard Face Seal Fittings
- High Velocity Nozzle
- Valve Body is Serialized for Material Certification

## 2028 Construction Materials



2028-5

# 2028 SERIES

## 2028 Series Technical Data

MATERIAL OF CONSTRUCTION	Wetted Areas	316L Stainless Steel																																
	Non-Wetted Areas	316L Stainless Steel																																
VACUUM	2028 Series	27° at Hg with Inlet Nitrogen Pressure at 60 psig (4.13 bar) max																																
ENTRAINMENT RATIO	2028 Series	Approximate 7:1 at 1 atm																																
NITROGEN FLOW	2028 Series	Maximum 2.7 scfm of N @ 80 psig (5.50 bar)																																
PERFORMANCE	<table border="1"> <caption>Approximate data points from the Vacuum vs. Nitrogen Gas Flow graph</caption> <thead> <tr> <th>Nitrogen Gas Flow (scfm)</th> <th>Vacuum (in. Hg)</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0</td></tr> <tr><td>0.2</td><td>-1</td></tr> <tr><td>0.4</td><td>-2</td></tr> <tr><td>0.6</td><td>-3</td></tr> <tr><td>0.8</td><td>-5</td></tr> <tr><td>1.0</td><td>-10</td></tr> <tr><td>1.2</td><td>-15</td></tr> <tr><td>1.4</td><td>-22</td></tr> <tr><td>1.6</td><td>-26</td></tr> <tr><td>1.7</td><td>-27</td></tr> <tr><td>1.8</td><td>-27</td></tr> <tr><td>1.9</td><td>-27</td></tr> <tr><td>2.0</td><td>-27</td></tr> <tr><td>2.1</td><td>-27</td></tr> <tr><td>2.2</td><td>-27</td></tr> </tbody> </table>		Nitrogen Gas Flow (scfm)	Vacuum (in. Hg)	0.0	0	0.2	-1	0.4	-2	0.6	-3	0.8	-5	1.0	-10	1.2	-15	1.4	-22	1.6	-26	1.7	-27	1.8	-27	1.9	-27	2.0	-27	2.1	-27	2.2	-27
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HELIUM LEAK TEST	Inboard Across the Seat Outboard Pressure Test	$\leq 1 \times 10^{-9}$ std.cc (atm) He / sec $\leq 1 \times 10^{-9}$ std.cc (atm) He / sec $\leq 1 \times 10^{-6}$ std.cc (atm) He / sec																																
CLEANLINESS AND PACKAGING	Assembled and tested in Class 100 Cleanroom. Purged and Final Packaged in Class 1 Cleanroom. Double-bag Packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N <sub>2</sub> gas environment.																																	
STANDARD FINISH	16 Ra Max – Electropolished Surface Finish – Std																																	
NOTES AND OPTIONS	Weld on Tube Extension																																	

Specifications are subject to change without notice.

# 2048 SERIES



## 2048 Series Product Applications

This check valve connection series is intended for process gas distribution service where containment, cleanliness, and purity are of utmost importance.

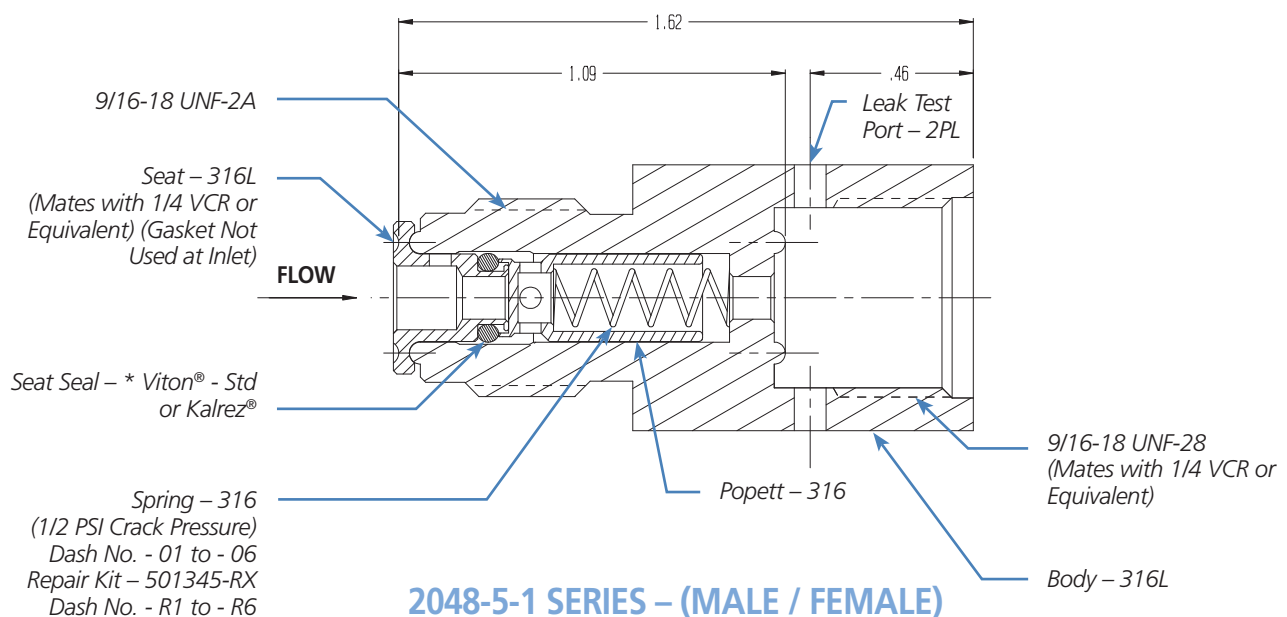
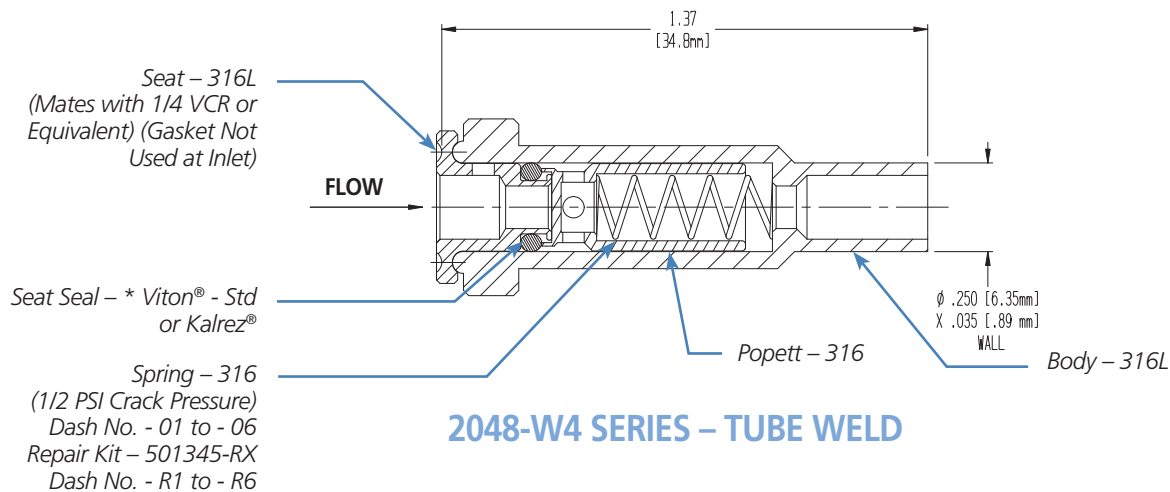
Applications for this generator include:

- Prevents undesired reverse flow in high-purity gas systems
- Gas cabinet process lines
- Reactor gas line protection

## 2048 Series Product Features

- High Performance, Compact Design
- Vacuum to 3500 psig Operating Pressure
- 16 Ra Max – Electropolished Surface Finish – Std
- Valve Body is Serialized for Material Certification

## 2048 Construction Materials



\*Kalrez® and Viton® are registered trademarks of DuPont Company.

# 2048 SERIES

## 2048 Series Technical Data

MATERIAL OF CONSTRUCTION	Wetted Areas	316L Stainless Steel, Viton®	
	Non-Wetted Areas	316L Stainless Steel	
MAXIMUM OPERATING PRESSURE	2048 Series	Vacuum to 3500 psig (240.8 bar)	
MAXIMUM OPERATING TEMPERATURE	* Viton® Seat - Std * or Kalrez®	-15°F (-5°C) to 250°F (121°C)	
FLOW COEFFICIENT (C <sub>v</sub> )	2048 Series	0.25 at full flow	
CRACKING PRESSURE OPTIONS	2048 Series	Crack Pressure - psi	Reseat Pressure - psi
		1/2 ± 1/4	1/4
		2 ± 1/2	1
		5 ± 1	3
		10 ± 2	7
		50 ± 3	47
PERFORMANCE TESTING	Forward Pressure	Cracking Pressure Test	
	Back Pressure	Reverse Flow Seal Test	

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CLEANLINESS AND PACKAGING	Assembled and tested in Class 100 Cleanroom. Purged and Final Packaged in Class 1 Cleanroom. Double-bag Packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N <sub>2</sub> gas environment.
STANDARD FINISH	16 Ra Max – Electropolished Surface Finish – Std
NOTES AND OPTIONS	Swivel End Connection End Connection Configurations Female / Make VCR type (-1-5)

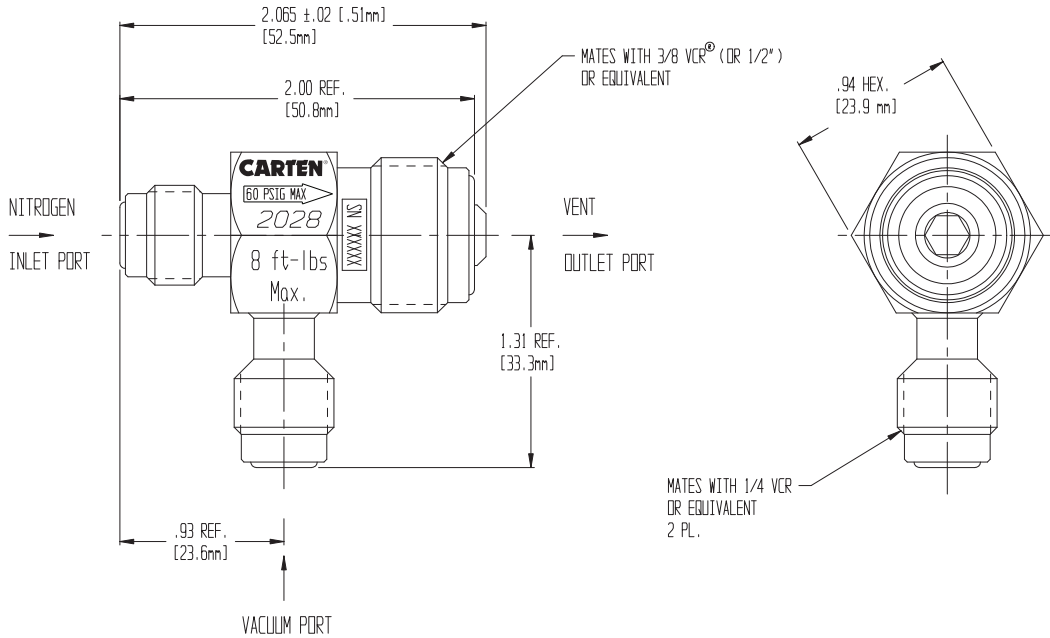
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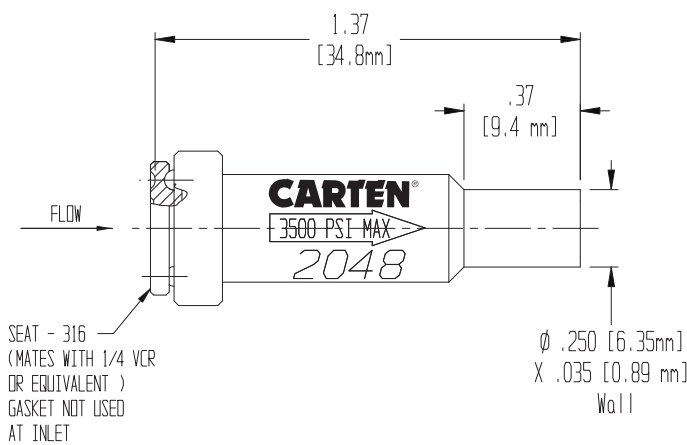
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## 2028/2048 Series Typical Valve Dimensions

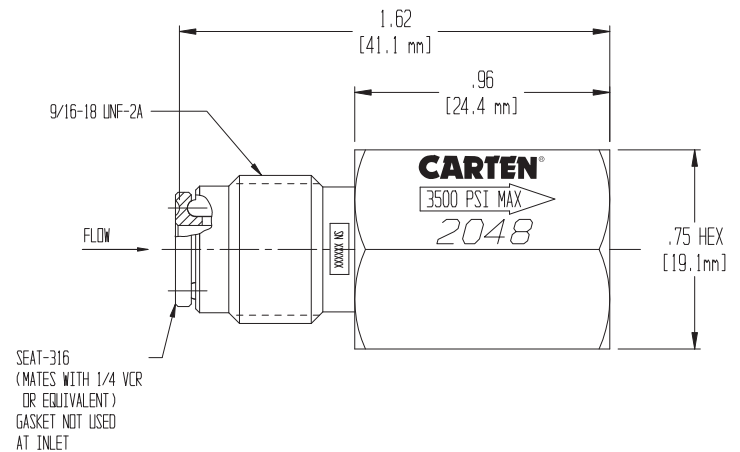
### 2028-5 SERIES (SINGLE PORT)



### 2048-W4 SERIES TUBE WELD



### 2048-5-1 SERIES (MALE / FEMALE)



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