

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.

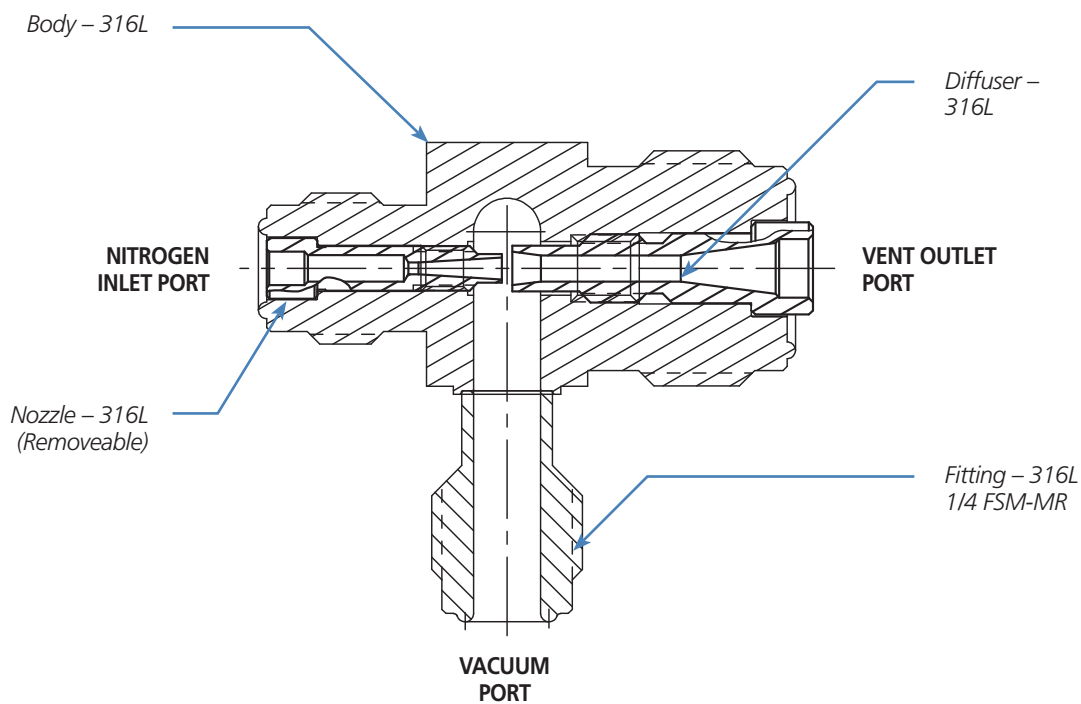
Applications for this generator include:

- 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>-21</td></tr> <tr><td>1.6</td><td>-25</td></tr> <tr><td>1.7</td><td>-26</td></tr> <tr><td>1.8</td><td>-26</td></tr> <tr><td>1.9</td><td>-26</td></tr> <tr><td>2.0</td><td>-26</td></tr> <tr><td>2.1</td><td>-26</td></tr> <tr><td>2.2</td><td>-26</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	-21	1.6	-25	1.7	-26	1.8	-26	1.9	-26	2.0	-26	2.1	-26	2.2	-26
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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 ₂ 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.

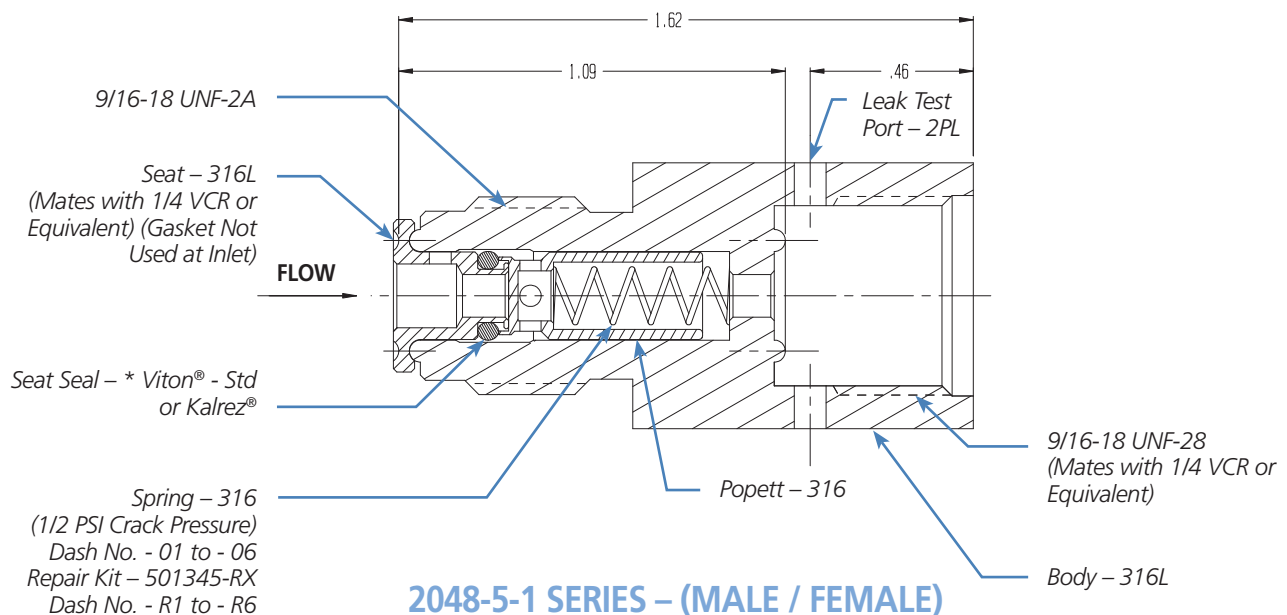
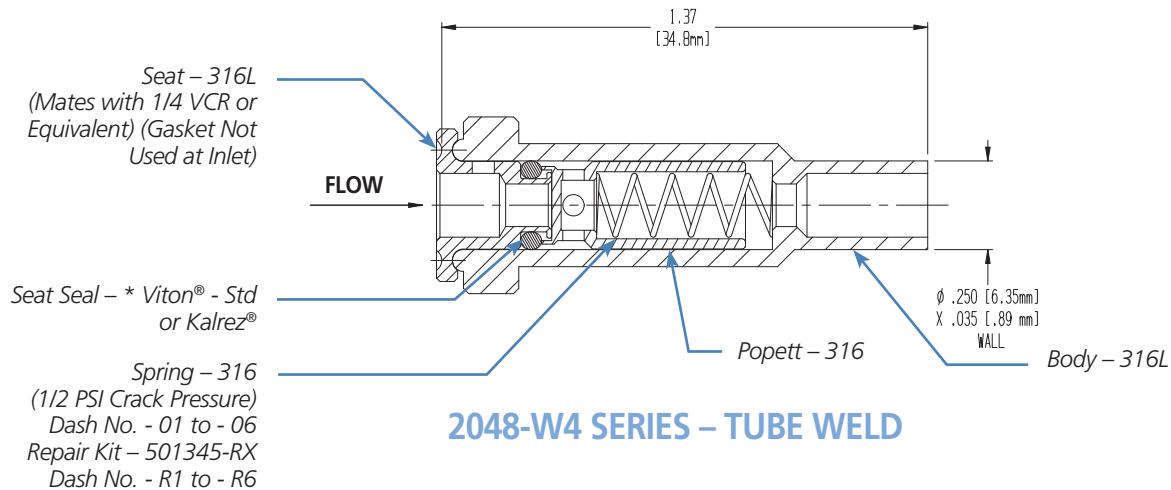
Applications for this generator include:

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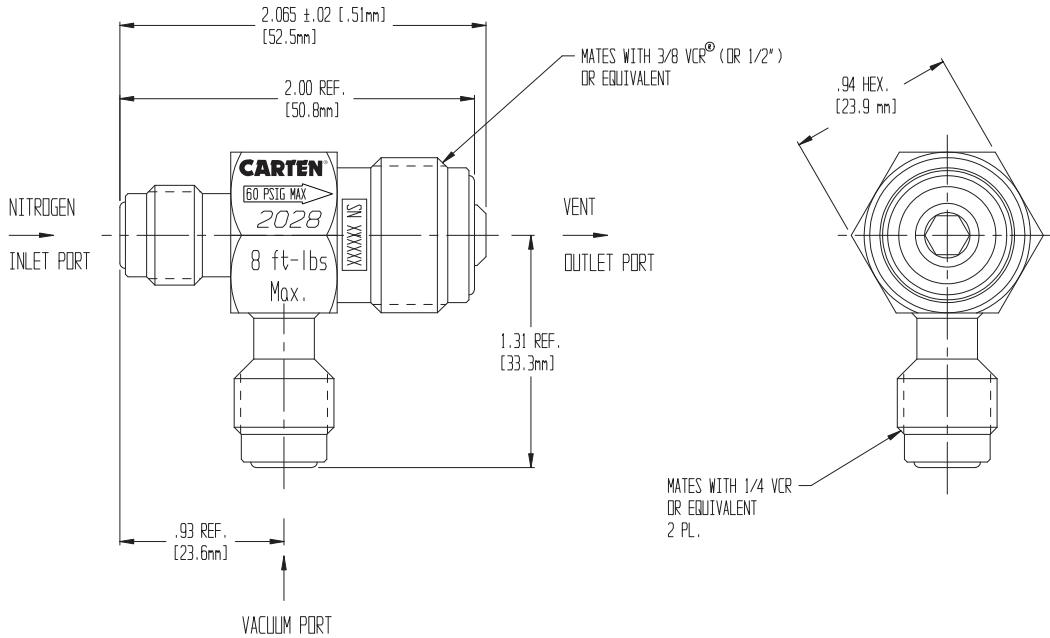
CLEANLINESS AND PACKAGING	Assembled and tested in Class 100 Cleanroom. Purged and Final Packaged in Class 1 Cleanroom. Double-bag Packaging (2 mil nylon inner bag, 6 mil polyethylene outer bag) with Ultra-High Purity N ₂ gas environment.
STANDARD FINISH	16 Ra Max – Electropolished Surface Finish – Std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

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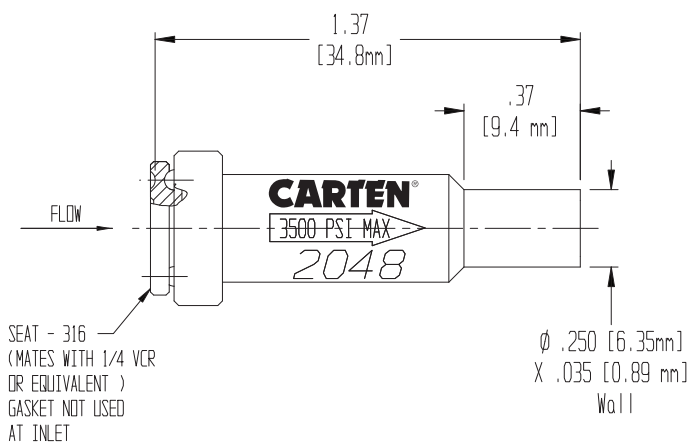
2028/2048 SERIES

2028/2048 Series Typical Valve Dimensions

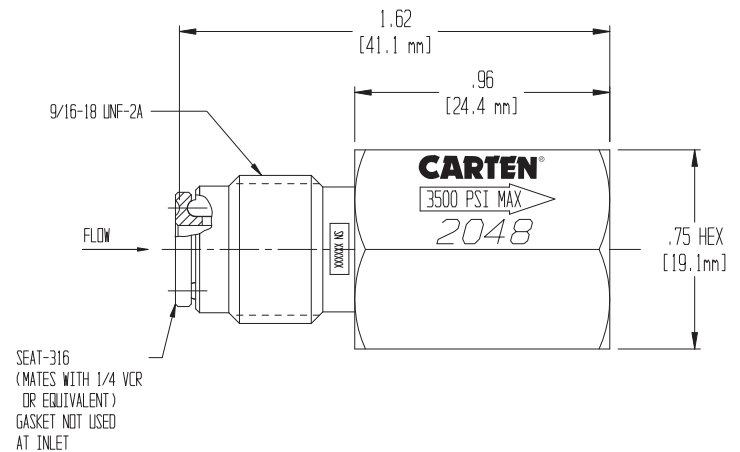
2028-5 SERIES (SINGLE PORT)



2048-W4 SERIES TUBE WELD



2048-5-1 SERIES (MALE / FEMALE)



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