



**WAFERGARD® III NF-750
IN-LINE GAS FILTERS**

Installation and use manual



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Introduction

Wafergard® III NF-750 nickel filters are the cleanest, most efficient all-metal filters available. The patented nickel filter membrane (U.S. Patent No. Re 36,249) offers superior corrosion resistance and excellent compatibility with inert and reactive gases.*

The innovative housing design eliminates out-gassing and reduces drydown time. The Wafergard® III NF-750 gas filter provides the strength of Entegris' metal membrane with the pressure drop and compact size of Teflon® fluoropolymer filters.

* Not recommended for use with CO, O₃ and low-level hydride dopant gases.

Features and Benefits

- Cleanest, most efficient all-metal filter available
- Superior particulate filtration for ultrapure applications

Applications

- Ultrapure gas lines
- High-temperature applications
- Valve-manifold boxes
- New fab construction
- Upgrade of existing Teflon® fluoropolymer filters
- Spin rinse dryers
- Inert and reactive gases
- Bulk gas
- Vapor phase gas

Specifications

Materials:	Filter element	Patented, sintered nickel membrane filter	
	Housing	Patent pending design; electropolished VAR 316L stainless steel housing	
Downstream cleanliness:	Particles ^{1, 2}	<0.03 particles/liter (<1 particle/ft ³) >0.01 μm @ 300 SLPM	
	Volatiles ³	Volatile outgassing of H ₂ O, O ₂ and THC is below detectable limits (by RGA and FID at room temperature)	
Removal rating:	≥0.003 μm		
Surface finish interior:	≤5 μin Ra		
Total flow area:	140.0 cm ²		
Helium leak rating:	Qualified	2 × 10 ⁻¹⁰ atm-cc/sec	
	Tested	1 × 10 ⁻⁹ atm-cc/sec	
Operating conditions:	Maximum inlet pressure	52 bar (750 PSIG) @ 100°C	
	Maximum forward/reverse differential pressure	7 bar (100 PSID)	
	Maximum operating temperature	Inert gases	400°C @ 27.5 bar (400 PSIG)
Corrosive and reactive gases		50°C @ 52 bar (750 PSIG)	
Warranty:	5 year		
Particle retention:	Greater than 99.9999999% (9 LRV) removal of all particles at 300 SLPM; greater than 99.9999% (6 LRV) removal of all particles at 750 SLPM (referenced at the most penetrating particle size)		
Flow rating:	See performance data		

¹ Particle cleanliness qualified following SEMASPEC Test Method for Particle Shedding (#93021511A-STD).

² Verified at 100 SLPM for 1/4" gasket seal fitting (compatible with VCR® fitting).

³ Volatile cleanliness qualified following SEMASPEC Test Methods for: THC Contribution (#90120396B-STD), Moisture Contribution (#90120397B-STD), Oxygen Contribution (#90120398B-STD).

Installation and Use

Step 1: Unpack the Filter

The filter is double-bagged for cleanroom service and should remain packaged until installation.

NOTE: Do not remove the filter from the protective bag unless you are in a clean environment.

1. Remove the filter from the box and carry it into the gray area.
2. Remove the outer protective bag and discard.
3. Carry the filter (sealed in the inner bag), into the clean area.

Step 2: Install the Filter

1. Prepare the connection fitting in place on the gas line. Any other fitting components, such as stainless steel gaskets, should be blown clean with a filtered gas before use.
2. Maintain a flow of at least 1 SLPM (0.05 SCFM) of inert gas during installation to minimize tubing and filter contamination from environmental moisture and particles. The recommended purge gas is electronic-grade nitrogen.
3. Open the inner bag and remove the filter. Remove the fitting protection caps and seat the filter on the mating connections.
4. Tighten the nuts by hand, then 1/8 turn past hand-tight by wrench for VCR®-compatible fittings.

DO NOT overtighten.

NOTE: Refer to specific technical guides furnished by fitting manufacturers for additional specifications.

Step 3: Prepare the Filter for Use

1. Verify integrity of the seal by appropriate helium leak-testing procedures.
2. Turn the gas flow **ON**, then **OFF**, 10 times to remove any particles generated during installation. (The flow rate used should at least equal the process flow specifications.)
3. Installation is complete. Initiate startup procedures for process gases.

Filter Replacement

1. Turn off the process gas.



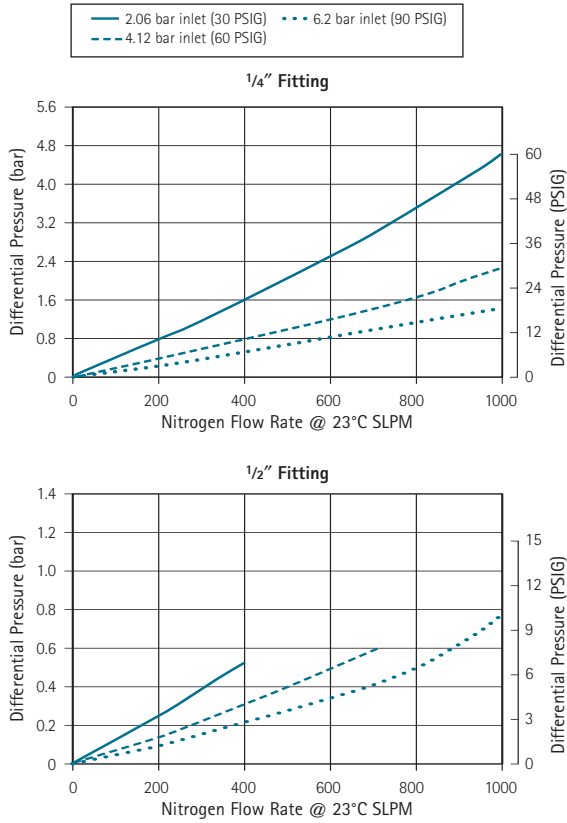
CAUTION! Purge the system with inert gas for a minimum of 4 hours at full gas flow when using toxic, corrosive or pyrophoric gases.

2. Remove the existing filter from the gas line and seal with fitting caps.
3. Install a replacement filter as outlined above.

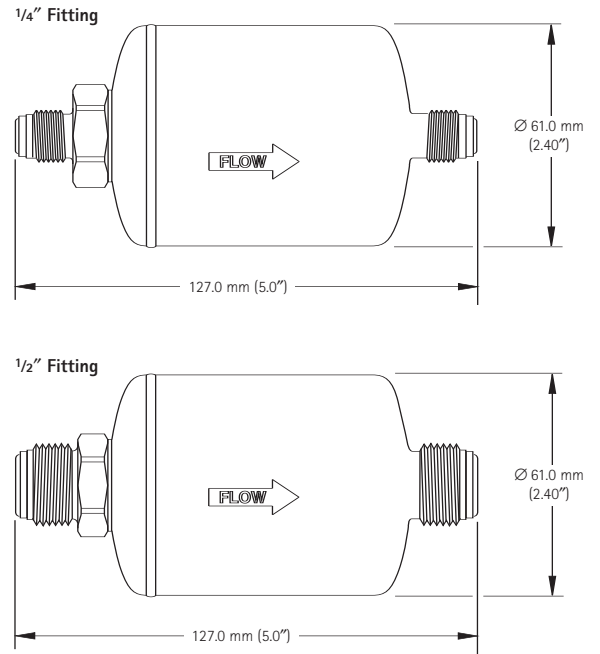


CAUTION! Dispose of the used filter in compliance with local regulations.

Performance Data



Dimensions



Ordering Information

Part Number	Overall Length	Fitting Options
WG3N S7 RR2	127 mm (5.00")	1/4" Gasket seal (compatible with VCR® fitting) male inlet/outlet
WG3N S7 RR4	127 mm (5.00")	1/2" Gasket seal (compatible with VCR® fitting) male inlet/outlet

Entegris Standard Warranties

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As used in this General Limited Warranty the term Applicable Warranty Period for the indicated product groups are as follows:

Entegris Products	Warranty Period	Entegris Product Codes	Entegris Products	Warranty Period	Entegris Product Codes
Polymeric membrane products Exceptions: Does not apply to membrane-based purifiers	1 year from date of shipment	H4, H5, M4, M6	Non-dispense electro-mechanical products	1 year from date of shipment	—
Metal membrane products Exceptions: Nickel membrane gas filtration products	2 years from date of shipment 5 years or 100,000 cycles (whichever comes first) from date of shipment	I2 I2	Integrated shipping systems products	30 days from date of shipment	—
Exceptions: Nickel membrane gas diffuser products	5 years or 100,000 cycles (whichever comes first) from date of shipment	I5	Wafer handling, electronic packaging products and cleaning systems	90 days from date of shipment	—
Polymeric membrane-based purifiers / Other liquid purifiers / Gas purifiers / Chemical filters	1 year from date of shipment	I7, I8, F1, F2, F4	Liquid fittings, containers and housings Exceptions: Sheetlined chemical container products and FluoroPure® PFA Liners (blistering, cracking or leakage only)	1 year from date of shipment 18 months from date of shipment	—
Dispense products and liquid subsystems Exceptions: Products and subsystems purchased by Original Equipment Manufacturers (OEM)	1 year from date of shipment 18 months from date of shipment	H6 H6	Exceptions: FluoroPure® o-rings and gasket materials	90 days from date of shipment	—
			Software Products	1 year from date of shipment	—
			Other Products	1 year from date of shipment	—

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ENTEGRIS, INC.

Corporate Headquarters
3500 Lyman Boulevard
Chaska, Minnesota 55318 USA
Customer Service Tel. 952-556-4181
Toll Free 800-394-4083
Customer Service Fax 952-556-8022
www.entegris.com

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