

Ultramet-L® 4000 Series Filter Assembly



Description

The Ultramet-L® 4000 Series Filter Assembly is a unique, all 316L stainless steel filter designed for ≥ 3 nanometer ($0.003 \mu\text{m}$) filtration of semiconductor process gases.

- All 316L stainless steel construction
- State-of-the-art 316L stainless steel media
- Excellent particle removal efficiency vs. pressure drop
- Accommodates extremely high flow rates for the assembly size
- Excellent gas displacement and desorption characteristics
- High temperature and pressure capabilities
- Compact size for ease of installation
- Wide variety of fitting options available
- 100% helium leak tested
- Cleanroom manufactured and packaged
- VAR PLUS housing material meets or exceeds VIM VAR specifications

Specifications

Materials

- Electropolished 316L stainless steel housing
- $\leq 7 \mu\text{in} / 0.18 \mu\text{m} R_a$ internal surface finish
- Cr:Fe (1:1) Chromium enriched internal surface chemistry
- Housing material meets or exceeds VIM/VAR specifications
- 316L stainless steel filter media

Removal Rating

- $\geq 0.003 \mu\text{m}$

Connections

- $\frac{1}{4}$ ", $\frac{1}{2}$ " Gasket Seal, Male/Male (VCR¹ or compatible)
- $\frac{1}{4}$ " Compression Seal, Male/Male (Swagelok¹ or compatible)
- $\frac{1}{4}$ " Butt Weld (0.035 " / 0.89 mm wall)

Operating Conditions

- Maximum Operating Pressure:
 - 3000 psig @ $100^\circ\text{F} / 207$ bar @ 38°C ;
 - 1685 psig @ $840^\circ\text{F} / 116$ bar @ 450°C
- Maximum Allowable Differential Pressure:
 - 125 psid @ $100^\circ\text{F} / 8.6$ bar @ 38°C ;
 - 60 psid @ $840^\circ\text{F} / 4.1$ bar @ 450°C

Particle Removal Characteristics

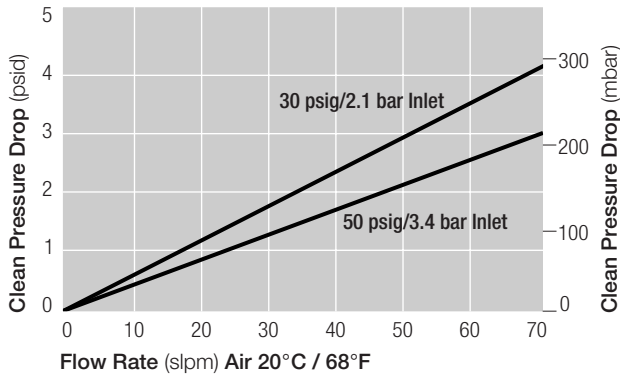
- 10^9 particle reduction up to 6 slpm / 0.2 scfm
- 10^4 particle reduction up to 75 slpm / 2.6 scfm

Leak Rating

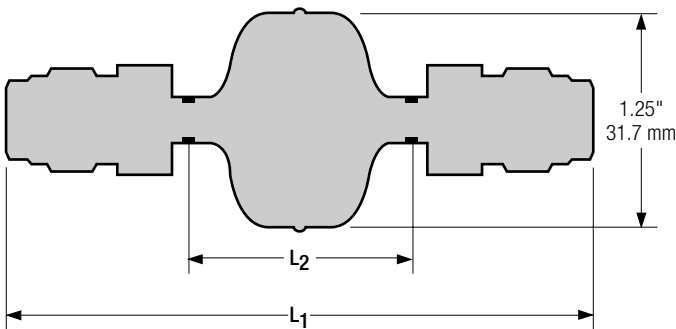
- 100% helium leak tested to 10^{-9} atm·cc/s
- Design validated to 10^{-11} atm·cm³/s

¹VCR and Swagelok are trademarks of Swagelok Co.

Pressure Drop vs. Gas Flow Rate



Dimensions



Part Numbers/Ordering Information

Part Number	Description	Length (L) (in / mm)
GLFF4000VM4	¼" Gasket Seal (VCR or Compatible) Male/Male	3.31 / 84 (L ₁)
GLFF4000SM4	¼" Compression Seal (Swagelok or Compatible) Male/Male	2.88 / 73 (L ₁)
GLFF4000BW4	¼" Butt Weld, 0.035" / 0.89 mm wall	1.75 / 45 (L ₂)
GLFF4000VMM8	½" Gasket Seal (VCR or Compatible) Male/Male	3.35 / 85 (L ₁)

Unit conversion: 1 bar = 100 kilopascals



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