

NANOCHEM[®]

NANOCHEM[®] PuriFilter[®] Gas Purifier

Overview

NANOCHEM[®] PuriFilter[®] is a compact purifier/filter combination designed for placement internal to the process tool, delivering the gas purity required in a sub-micron fabrication environment.

The PuriFilter[®] has a patented valve-in-gland seal that enables integrity of the media bed when the PuriFilter[®] is installed. The valve also reduces leakage of any residual hazardous gases when the purifier is removed.

PuriFilters[®] provide insurance against virtually all variables that cause contamination, including gas impurities introduced through the gas jungle. The PuriFilter[®] is a direct replacement for in-line particle filters and a typical location for this product would be directly before the process chamber or mass flow controller.

Features and Benefits

- Purification for point-of-use applications
- **Highest Lifetimes**
- **Best Impurity Removal Efficiencies**
 - Removes critical contaminants to sub parts-per-billion level (< 0.1 ppb in inert gases)
- Patented built-in poppet valves at purifier inlet and outlet
 - Reduces / eliminates media exposure to atmospheric air during purifier installation
 - Reduces operator exposure to residual process gas during purifier removal
- Enhances manufacturing process economy and improves equipment performance
- Provides consistently high purity gas under fluctuating inlet impurity conditions
- Improves component lifetime and reduces particle generation by removing moisture and volatile metals from corrosive gases
- Compact size for ease of installation
- Does not require heating or cooling
- Low overall cost of ownership

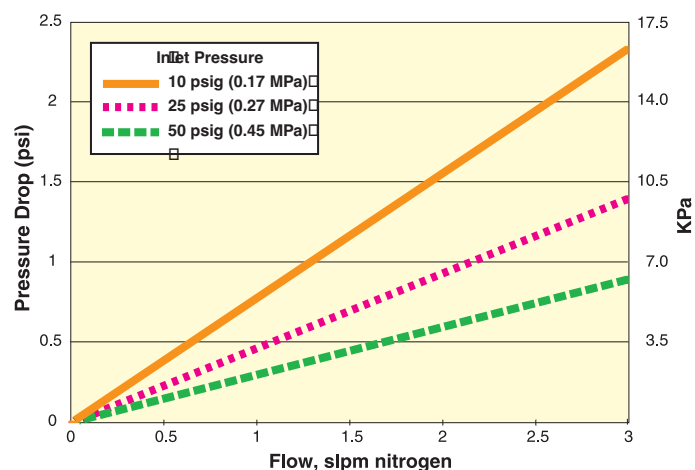
Connections

- Male inlet and outlet 1/4 inch face seal fittings



Specifications

- Flow rates up to 3 slpm (0.2 NM³/hr)
- All wetted parts, Type 316L stainless steel with Nickel 200 button gasket
- 0.003 μ m PALL Ultramet-L[®] stainless steel particle filter with 99.9999999% retention
- Outer diameter of 1.5 inches (38.1 mm) and total length of 3.31 inches (84.07 mm) after installation of custom gaskets
- Internal surface finish < 10 μ m Ra
- Maximum allowable working pressure of 1000 psig (7 MPa)
- Maximum operating temperature 70°C

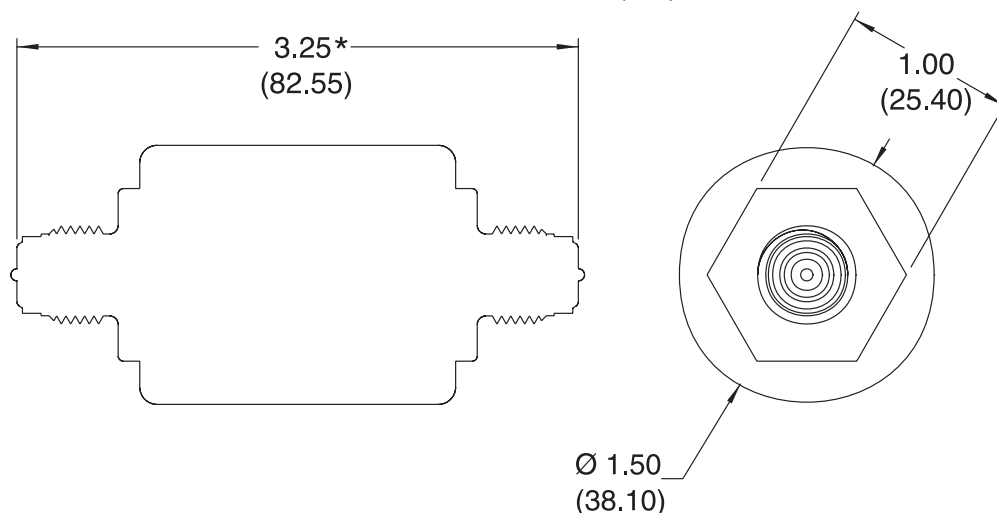


MATHESON
The Gas Professionals

NANOCHEM® PURIFILTER® PURIFIERS

Mechanical dimension for PuriFilter®

All dimensions are in inches (mm)



*Note: Dimension will be 3.31" (84.07 mm) after installation of custom button gaskets shipped with PuriFilter®.

Gas Type	Impurities Removed
Nitrogen (N ₂), Argon (Ar), other inerts	< 0.1 ppb H ₂ O, O ₂ , CO ₂ LDL < 1 ppb CO* < 0.1 ppb NMHC LDL NO _x , SO _x , H ₂ S
Ammonia (NH ₃)	< 0.1 ppb H ₂ O, O ₂ , CO ₂ in inert gas LDL < 45 ppb H ₂ O in ammonia LDL
Silane (SiH ₄)	< 0.1 ppb H ₂ O, O ₂ , CO ₂ LDL < 1 ppb CO* Chlorosilanes, disilane, siloxanes, arsine, phosphine
Hydrogen (H ₂), Methane (CH ₄), Ethane (C ₂ H ₆), other HC	< 0.1 ppb H ₂ O, O ₂ , CO ₂ LDL < 1 ppb CO* NO _x , SO _x , H ₂ S
Sulfur Hexafluoride (SF ₆), Carbon Tetrafluoride (CF ₄), other fluorocarbons	< 0.1 ppb H ₂ O, O ₂ , CO ₂ in inert gas LDL < 10 ppb O ₂ , H ₂ O in sulfur hexafluoride LDL
Oxygen (O ₂), Carbon Dioxide (CO ₂), Nitrous Oxide (N ₂ O)	< 10 ppb H ₂ O
Carbon Monoxide (CO)	Metal Carbonyls: Fe, Ni
Corrosives (HCl, HBr, Cl ₂ , SiH ₂ Cl ₂ , SiHCl ₃ , BCl ₃ , HF)	< 1 ppb H ₂ O in inert gas < 3 ppm H ₂ O in HF < 100 ppb H ₂ O in HBr LDL < 150 ppb H ₂ O in HCl Volatile Metals: Fe, Mo, Cr, Ni, Mn, Ti

LDL – Lower Detection Limit by State-of-the-Art Analytical Instrumentation

NMHC – Non-methane Hydrocarbons

*NOTE: CO is removed efficiently by OMX & OMX-Plus™ media at low flow rates (recommend 1/10 of normal flow rate)

For a detailed list of purification media and impurities removed, refer to the Purification Media Table in NANOCHEM® Purification Solutions Brochure.

*Drop-in replacements available for competing hardware designs.

**For higher flow rates, contact MATHESON

NOTE: 0.003 µm particle filter with 99.9999999% retention standard on all models.

Specifications are subject to change. Please check www.mathesongas.com for most current information.

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