

NANOACHEM[®]

NANOACHEM[®] PuriFilter[®] Gas Purifier

Overview

NANOACHEM[®] PuriFilter[®] is a compact purifier/filter combination designed for placement internal to the process tool, delivering the gas purity required in a submicron 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

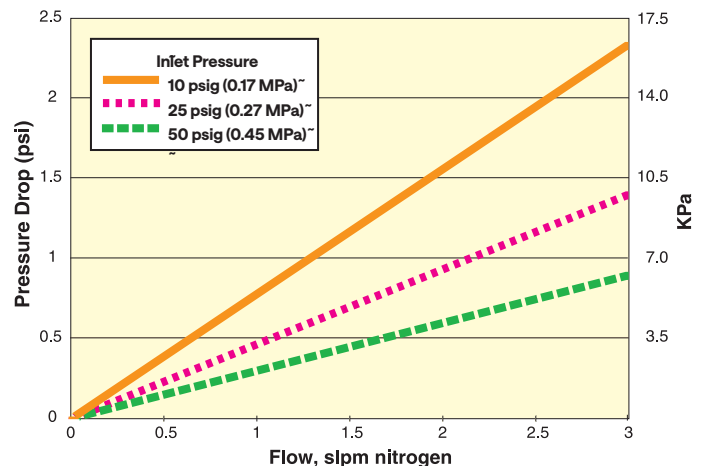
Connections

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



Specifications

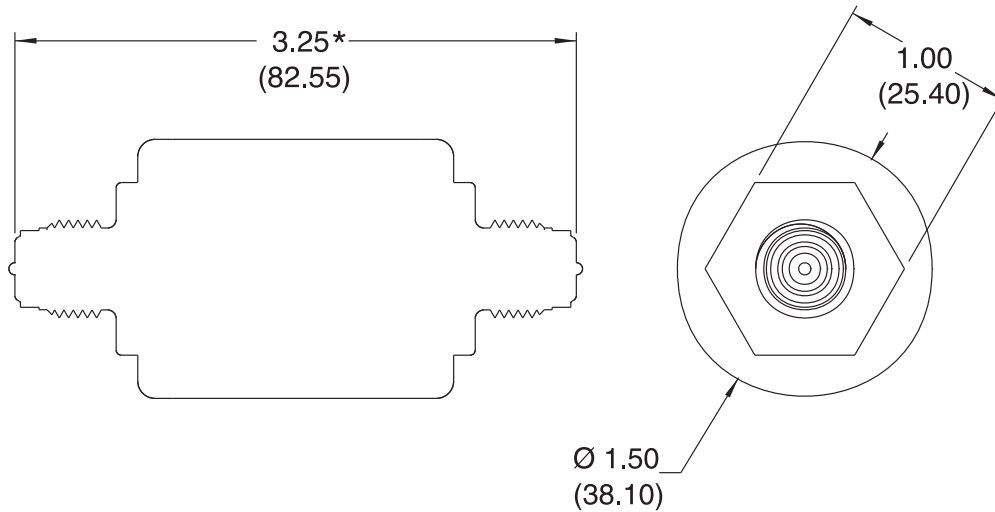
- Flow rates up to 3 slpm (0.2 NM³/hr)
- All wetted parts, Type 316L stainless steel with Nickel 200 button gasket
- 0.003 µm PALL Ultramet-L[®] stainless steel particle filter with 99.999999% retention
- Outer diameter of 1.5 inches (38.1 mm) and total length of 3.31 inches (84.07 mm) after installation of custom gaskets
- Internal surface finish < 10 µin Ra
- Maximum allowable working pressure of 1000 psig (7 MPa)
- Maximum operating temperature 70°C



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 Nippon Sanso Matheson

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

Copyright 2026 Nippon Sanso Matheson, Inc. All Rights Reserved. All contents of this document are subject to change without notice and do not represent a commitment on the part of Nippon Sanso Matheson, Inc. Every effort is made to ensure the accuracy of this information. However, due to differences in actual and ongoing operational processes and product improvements and revisions, Nippon Sanso Matheson, Inc. cannot guarantee the accuracy of this material, nor can it accept responsibility for errors or omissions. This document is intended to serve as a general orientation and cannot be relied upon for a specific operation. No warranties of any nature are extended by the information contained in these copyrighted materials.

All names, products, and services mentioned herein are the trademarks or registered trademarks of their respective organizations and are the sole property of their respective owners. Nippon Sanso Matheson and the Nippon Sanso Matheson logo are registered trademarks of Nippon Sanso Matheson, Inc.



www.us.nipponsanso.com

Tel: 800-416-2505

email: mathesonales@us.nipponsanso.com