

# NANOCHEM<sup>®</sup>

## NANOCHEM<sup>®</sup> H/HP-Series Gas Purifiers

### Features and Benefits

- Purification for all ultra-high purity applications
- **Highest Lifetimes**
- **Best Impurity Removal Efficiencies**
  - Removes critical contaminants to sub parts-per-billion level (< 0.1 ppb in inert gases)
- **End-Point Detection available (H-Series)**
- 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
- No moving parts or power requirements
- Easy to operate
- Built-in 1-valve bypass
- Does not require heating or cooling
- Low overall cost of ownership
- Media refills available for all sizes
- Inlet and outlet springless diaphragm valves

### Specifications

- All metal parts, Type 316L stainless steel, nickel and Elgiloy<sup>®</sup> valve diaphragm
- 0.003  $\mu\text{m}$  particle filter with 99.9999999% retention (PTFE or 316L SS)
- Internal surface finish < 15  $\mu\text{in Ra}$
- H-Series: Maximum allowable working pressure of 150 psig (1.13 MPa) with the fiber optic end-point detector or 500 psig (3.5 MPa) without detector
- HP-Series: Maximum allowable working pressure of 2850 psig (19.7 MPa)
- Maximum operating temperature of 40°C

### Connections

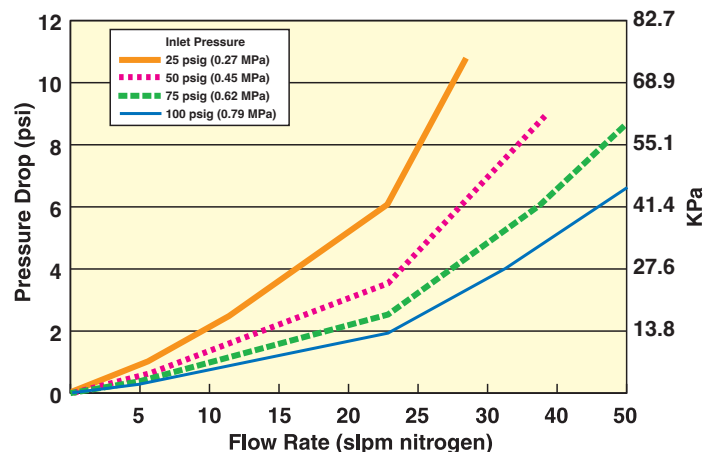
- Female inlet and male outlet 1/4 inch face seal fittings

### Options

- Fiber optic end-point detector indicates when it is time to replace the purifier (for non-corrosive gases only)
- Pneumatically-actuated diaphragm valves

### Description

The NANOCHEM<sup>®</sup> H/HP-Series Purifiers provide economical gas purification in multi-tool or single-source applications. With a welded bypass valve incorporated in the purifier unit, H/HP-Series purifiers are often used in gas enclosures, both source and purge gas, where space is limited. Its narrow width makes it ideal for installation in restricted space or gas jungle applications where multiple vertical gas lines are being run.



Operating Pressure and Flow Rates	H-500	HP-500
Maximum allowable working pressure, psig	500	2850
MPa	3.5	19.7
Maximum recommended flow rate slpm, N <sub>2</sub>	50	50
NM <sup>3</sup> /hr, N <sub>2</sub>	3	3

### Dimensions inches (mm)

H/HP-Series Purifier	H/HP-500	HP-300
A	26.90 (683.26)	21.09 (535.68)
B	26.30 (668.02)	20.49 (520.45)

Gas Type	Impurities Removed
Nitrogen (N <sub>2</sub> ), Argon (Ar), other inerts	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Ammonia (NH <sub>3</sub> )	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO <sub>2</sub> LDL
Silane (SiH <sub>4</sub> )	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Monomethylsilane (SiH <sub>3</sub> CH <sub>3</sub> )	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Arsine (AsH <sub>3</sub> ), Phosphine (PH <sub>3</sub> )	< 75 ppb H <sub>2</sub> O, LDL
Arsine 1-10% (AsH <sub>3</sub> ), Phosphine 1-10% (PH <sub>3</sub> ), Germane 1-10% (GeH <sub>4</sub> )	< 1 ppb H <sub>2</sub> O, O <sub>2</sub> , CO <sub>2</sub>
Hydrogen (H <sub>2</sub> ), Methane (CH <sub>4</sub> ), Ethane (C <sub>2</sub> H <sub>6</sub> ), other HC	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Deuterium (D <sub>2</sub> )	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Dichlorosilane (SiH <sub>2</sub> Cl <sub>2</sub> )	< 100 ppb H <sub>2</sub> O LDL Volatile Metals-Fe, Mo, Cr, Ti, Ni, Mn*
Dimethyl Ether (CH <sub>3</sub> ) <sub>2</sub> O	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO <sub>2</sub> LDL
Sulfur Hexafluoride (SF <sub>6</sub> )	< 10 ppb H <sub>2</sub> O, O <sub>2</sub> , LDL
Carbon Tetrafluoride (CF <sub>4</sub> )	< 100 ppt H <sub>2</sub> O, O <sub>2</sub> , CO**, CO <sub>2</sub> LDL
Oxygen (O <sub>2</sub> ), Carbon Dioxide (CO <sub>2</sub> ), Nitrous Oxide (N <sub>2</sub> O)	< 15 ppb H <sub>2</sub> O
Carbon Monoxide (CO), Nitric Oxide (NO)	< 100 ppb H <sub>2</sub> O LDL < 50 ppb Fe (CO) <sub>5</sub> Volatile Metals-Fe, Mo, Cr, Ti, Ni, Mn*
Corrosives (HCl, HBr, Cl <sub>2</sub> , SiH <sub>2</sub> Cl <sub>2</sub> , SiHCl <sub>3</sub> , BCl <sub>3</sub> )	< 100 ppb H <sub>2</sub> O LDL Volatile Metals-Fe, Mo, Cr, Ti, Ni, Mn*
Clean Dry Air	< 15 ppb H <sub>2</sub> O

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

\*MATHESON does not guarantee removal of volatile metals

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

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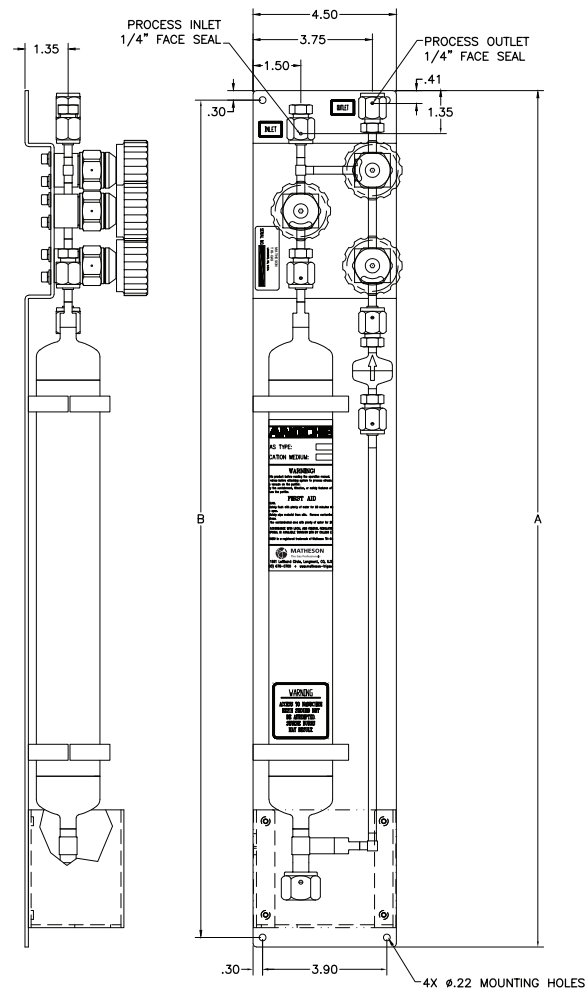
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Printed in USA PB030 R03/2026



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