

NANOCHEM® L-Series® Purifiers

Features and Benefits

- Purification for all ultra-high purity applications from source to point-of-use
- **Highest Lifetimes**
- **Best Impurity Removal Efficiencies**
 - Removes critical contaminants to sub parts-per-billion level
- **End-Point detection available**
 - 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
- Low overall cost of ownership
- Requires little or no conditioning of purification media
- Easy to install and operate. Does not require heating or cooling
- Resin refills available
- All metal parts, Type 316L stainless steel, Elgiloy® or Nickel 200 (except Kel-F® valve seat)
- Inlet and outlet springless diaphragm valves included
- Mounting bracket

Specifications

- 0.003 µm particle filter with 99.999999% retention (PTFE or 316L SS)
- Recommended for flow 10 sccm (0.0006 NM³/hr) up to 150 slpm (9 NM³/hr)
- Internal surface finish < 15 µin R_a
- Maximum allowance working pressure of 150 psig (1.13 MPa) with fiber-optic end-point detector or 500 psig (3.5 MPa) without end-point detector
- Maximum operating temperature of 70°C

Connections

- Female inlet and male outlet connections 1/4" VCR®-compatible face seal fittings

Overview

The NANOCHEM® L-Series® Purifier provides economical purification in multi-tool or single-source applications. Gas impurities such as moisture and oxygen adversely affect process quality. Those impurities are present in gas cylinders and can also be introduced through leaks in the line or during cylinder changes.

NANOCHEM® purification media react with such impurities to deliver consistently pure gas to the process, improving product consistency and yields.

Options

- Fiber optic end-point detector
 - Not available with L-60 Model
- Bypass assembly for isolating the purifier from the gas stream
- Pneumatically-actuated valves
- Upgraded particle filter for higher flow applications
- Bellows valves



Capabilities Summary

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 (with OMX-Plus™) 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 < 1 ppb CO* < 45 ppb H ₂ O in ammonia LDL NH ₃ -CO ₂ complexes, SiH ₄ , Siloxanes, GeH ₄ , H ₂ S
Silane (SiH ₄)	< 0.1 ppb H ₂ O, O ₂ , CO ₂ LDL < 1 ppb CO* Chlorosilanes, disilane, siloxanes, arsine, phosphine
Arsine (AsH ₃), Phosphine (PH ₃)	< 0.1 ppb H ₂ O, O ₂ , CO ₂ LDL < 45 ppb H ₂ O in phosphine LDL < 75 ppb H ₂ O in arsine LDL CO, oxyacids (H ₃ AsO ₂ , H ₃ P ₂ O ₂)
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)	< 1 ppb H ₂ O in inert gas < 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)

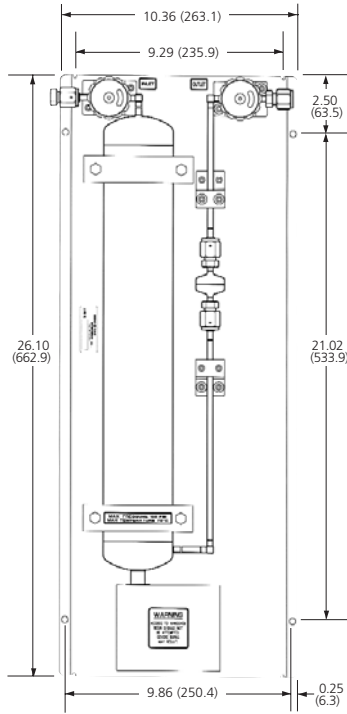
For a detailed list of purification media and impurities removed, refer to the Purification Media Table in Nanochem® Purification Solutions Brochure.



**MATHESON
TRI•GAS**

ask. . . The Gas Professionals™

Dimensions, Flow Rates and Options

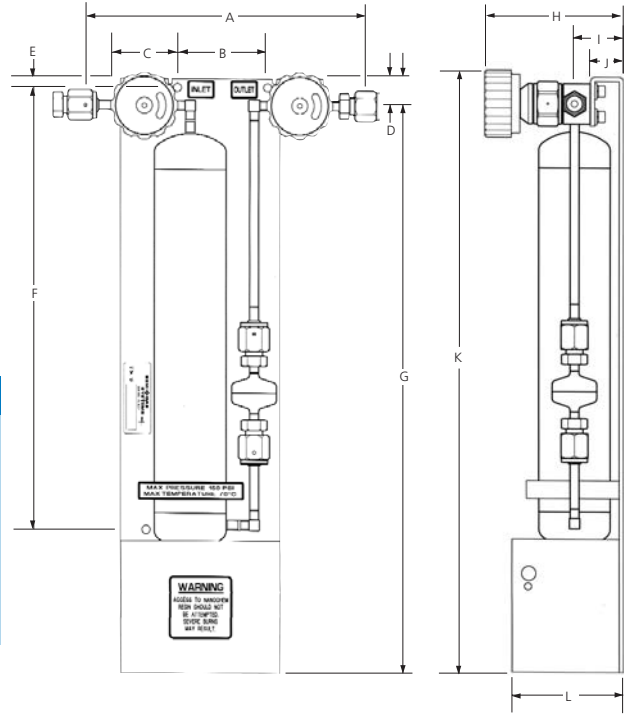


L-2000

	L-60	L-300	L-500
A	8.00 (203.20)	8.00 (203.20)	8.00 (203.20)
B	2.51 (63.75)	2.51 (63.75)	2.51 (63.75)
C	1.59 (40.39)	1.59 (40.39)	1.59 (40.39)
D	0.76 (19.05)	0.76 (19.05)	0.76 (19.05)
E	0.25 (6.35)	0.25 (6.35)	0.25 (6.35)
F	7.90 (200.66)	7.90 (200.66)	12.34 (313.44)
G	11.40 (289.56)	11.40 (289.56)	15.84 (402.34)

	L-60	L-300	L-500	L-2000
H	3.88 (98.55)	3.88 (98.55)	3.88 (98.55)	4.81 (122.17)
I	1.38 (35.05)	1.38 (35.05)	1.38 (35.05)	2.32 (58.93)
J	0.94 (23.88)	0.94 (23.88)	0.94 (23.88)	1.87 (47.50)
K	12.15 (308.60)	12.15 (308.60)	16.59 (421.39)	26.10 (662.90)
L	3.13 (79.50)	2.88 (73.15)	2.88 (73.15)	3.25 (82.55)

*All dimensions are in inches (approx. mm)



L-60, L-300, L-500

Purifier	L-60	L-300	L-500	L-2000
Purification Medium bed volume - milliliters	60	300	500	2000
Maximum recommended flow rating - slpm nitrogen (NM ³ /hr) nitrogen	8 (0.5)	15 (0.9)	50 (3.0)	50 (3.0)
With upgraded filter - slpm nitrogen (NM ³ /hr) nitrogen		50 (3.0)	75 (4.5)	150 (9.0)

L-SERIES® OPTIONS

	End-Point Detection	Bellows Valves	High Flow Particle Filter Upgrade	Purifier Bypass	Pneumatic Actuated Valves
L-60		•	•	•	•
L-300	•	•	•	•	•
L-500	•	•	•	•	•
L-2000	•	•	•	•	•

Specifications are subject to change.

MATHESON TRI-GAS, NANO-CHEM and L-Series are registered trademarks of Matheson Tri-Gas, Inc.
 VCR is a registered trademark of Cajon Corporation.
 Elgiloy is a registered trademark of Elgiloy Corporation.
 Kel-F is a registered trademark of 3M.
 Printed in USA PBO26 R05/05