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 99.9999999% retention (PTFE or 316L SS)
- Recommended for flow 10 sccm (0.0006 NM^3/hr) up to 150 slpm (9 NM^3/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 impurties 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

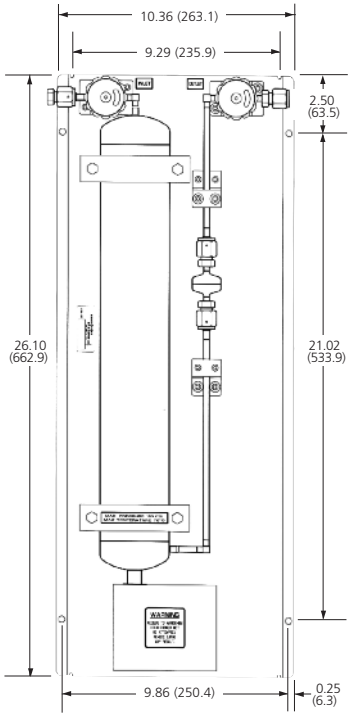
Gas Type	Impurities Removed
Nitrogen (N_2), Argon (Ar), other inerts	< 100 ppt H_2O, O_2, CO_2 LDL < 1 ppb CO* < 100 ppt NMHC (with OMX-Plus™) LDL NO_x, SO_x, H_2S
Ammonia (NH_3)	< 100 ppt H_2O, O_2, CO_2 in inert gas LDL < 1 ppb CO* < 45 ppb H_2O in ammonia LDL NH_3-CO_2 complexes, SiH_4, Siloxanes, GeH_4, H_2S
Silane (SiH_4)	< 100 ppt H_2O, O_2, CO_2 LDL < 1 ppb CO* Chlorosilanes, disilane, siloxanes, arsine, phosphine
Arsine (AsH_3), Phosphine (PH_3)	< 100 ppt H_2O, O_2, CO_2 LDL < 45 ppb H_2O in phosphine LDL < 75 ppb H_2O in arsine LDL CO, oxyacids ($H_xAs_yO_z$, $H_xP_yO_z$)
Hydrogen (H_2), Methane CH_4), Ethane (C_2H_6), other HC	< 100 ppt H_2O, O_2, CO_2 LDL < 1 ppb CO* NO_x, SO_x, H_2S
Sulfur Hexafluoride (SF_6), Carbon Tetrafluoride (CF_4), other fluorocarbons	< 100 ppt H_2O, O_2, CO_2 in inert gas LDL < 10 ppb O_2, H_2O in sulfur hexafluoride LDL
Oxygen (O_2), Carbon Dioxide (CO_2), Nitrous Oxide (N_2O)	< 10 ppb H_2O
Carbon Monoxide (CO)	Metal Carbonyls: Fe, Ni
Corrosives (HCl, HBr, Cl_2, SiH_2Cl_2, $SiHCl_3$, BCl_3)	< 1 ppb H_2O in inert gas < 100 ppb H_2O in HBr LDL < 150 ppb H_2O 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
ask. . .The Gas Professionals™

Dimensions, Flow Rates and Options

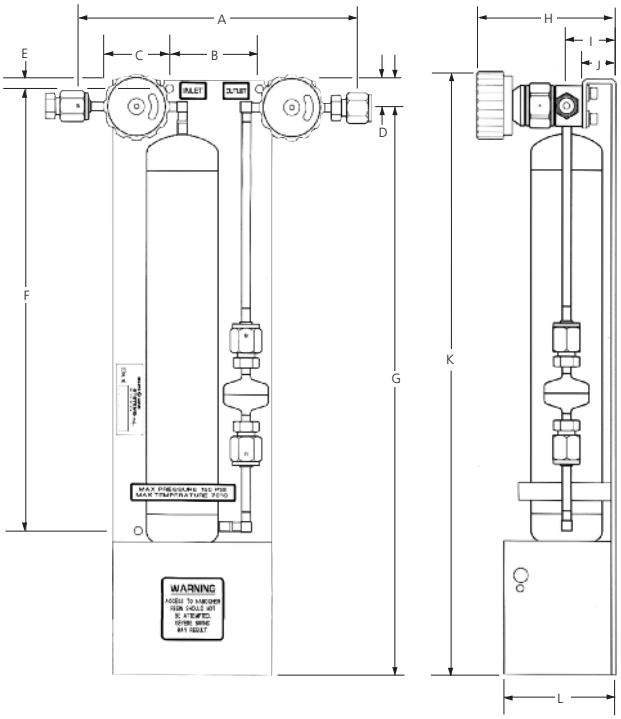


L-2000

	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	8	15	50	50
(NM^3/hr) nitrogen	(0.5)	(0.9)	(3.0)	(3.0)
With upgraded filter - slpm nitrogen		50	75	150
(NM^3/hr) nitrogen		(3.0)	(4.5)	(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	•	•	•	•	•

Equipment Technology Center
166 Keystone Drive
Montgomeryville, PA 18936
Tel: 800-828-4313 • Fax: 215-619-0458
Email: Info@mathesongas.com

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

Printed in USA PB026 R09/11

MATHESON
ask. . .The Gas Professionals™