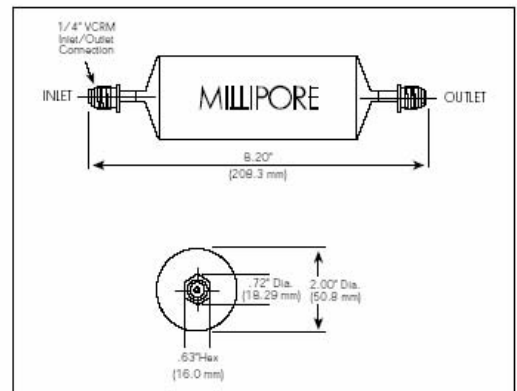
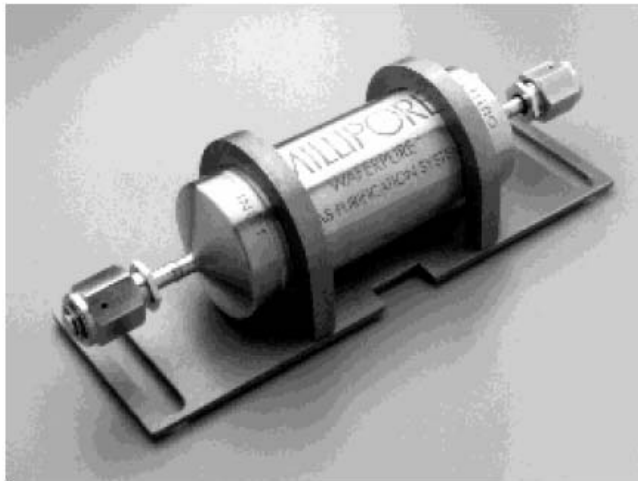


# Waferpure™ Megaline Integrated Filter/Purifier

Particulate and molecular filtration in the gas cabinet and manifold boxes



Installation drawing

## One-Step Filtration and Purification

The Waferpure Megaline filter integrates filtration and purification technology. The filter/purifier functions not only as a particle filter, but also as a molecular filter. Volatile impurities, including moisture, oxygen, carbon monoxide and carbon dioxide are removed.

## Purification Inside the Gas Cabinet

The Waferpure Megaline system provides a compact solution for purification and filtration requirements in gas cabinet panels, for both purge and process gases. The system helps eliminate variability in gas purity and protects the gas distribution system, increasing component longevity and reliability.

## Key Features

- Removes particles, moisture, oxygen, CO<sub>2</sub>, CO and other gas-specific impurities from process gas streams
- 316L stainless steel housings with all-wetted surfaces electropolished to less than 10 µin Ra
- 0.01 µm Wafergard® II sintered stainless steel filter element

- Operates at ambient temperatures
- Compact size, 208 mm (8.2") length x 50 mm (2") diameter
- Can be installed in any orientation
- No moving parts or external power supply
- Cleanroom manufactured, welded, tested and packaged
- Shipping and support bracket

## Process Gas Table

Gas Type	Number of Gases	Common Impurities Removed	Outlet Purity
Corrosive Chlorine, Hydrogen Bromide, Hydrogen Chloride, Dichlorosilane	4	H <sub>2</sub> O	100 ppb
Inert Argon, Halocarbons (14, 116, 218), Nitrogen, Helium, Hydrogen	7	H <sub>2</sub> O, O <sub>2</sub> , CO <sub>2</sub> , CO	1 ppb
Oxide Gases Oxygen, Nitrous Oxide	2	H <sub>2</sub> O	100 ppb
Other Specialty Phosphine, Arsine, Silane, Diborane, Neon, Krypton, Ammonia, Xenon, Sulfur Hexafluoride	9	H <sub>2</sub> O, O <sub>2</sub>	1 ppb

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## Specifications

### Materials

Electropolished, 100% penetration welded, 316L stainless steel housing with a 0.005 – 0.017% sulfur content. Gas-specific reactive micro matrix (RMM).

### Surface Finish (Interior)

Less than 10  $\mu$ m Ra

### Connections

1/4" swivel gasket seal (VCR® compatible) male inlet and outlet

### Particle Retention

Greater than 99.9999% removal of all particles larger than 0.01  $\mu$ m diameter

### Particle Shedding

Less than 1 particle/ $\text{ft}^3$  larger than 0.01  $\mu$ m diameter

Maximum Operating Temperature 100 °C (50 °C for Hydride and SF<sub>6</sub> purifiers)

### Housing Design Pressure

52 bar (750 psig) at 23 °C

### Maximum Inlet Pressure

Gas-specific based on vapor pressure

### Maximum Forward/Reverse Differential Pressure

7 bar (100 psig) at 23 °C

### Leak Rating

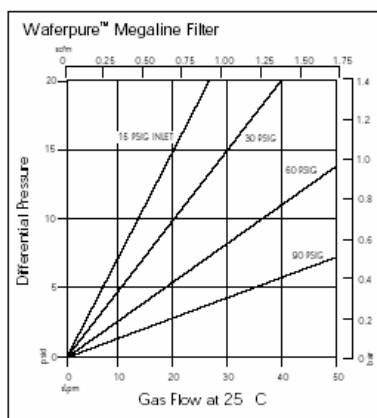
Maximum helium leak rate of 1x10<sup>-9</sup> atm•cc/sec

### Maximum Flow Rate

50 slpm (20 slpm for Hydride and SF<sub>6</sub> purifiers)

### Lifetime

Application specific



## Ordering Information

Gases	Impurities Removed	Catalogue No.
Hydrogen Bromide	Moisture	WPLV 202 SB
Chlorine, Dichlorosilane, Hydrogen Chloride	Moisture	WPLV 202 SC
Ammonia, Arsine, Diborane, Phosphine	Moisture, Oxygen	WPLV 202 SH
Argon, Halocarbons (14, 116, 218), Helium, Hydrogen, Krypton, Neon, Nitrogen, Xenon	Moisture, Oxygen, CO, CO <sub>2</sub>	WPLV 202 SI
Silane	Moisture, Oxygen, Siloxanes, HCl, Chlorosilanes	WPLV 202 SS
Sulfur Hexafluoride	Moisture, Oxygen	WPLV 202 SU
Oxygen, Nitrous Oxide	Moisture	WPLV 202SO

Contact your Applications Specialist for gases not listed.

## To Place an Order or Receive Technical Assistance

For additional information call the nearest number listed below:

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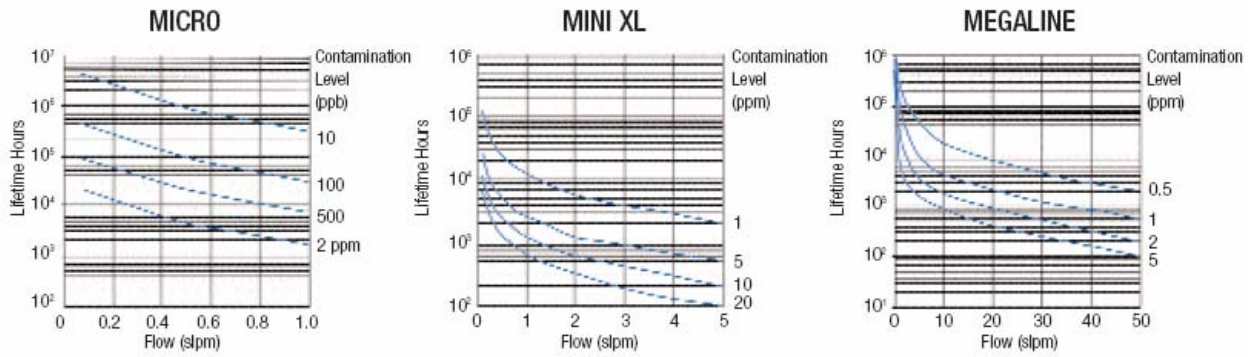
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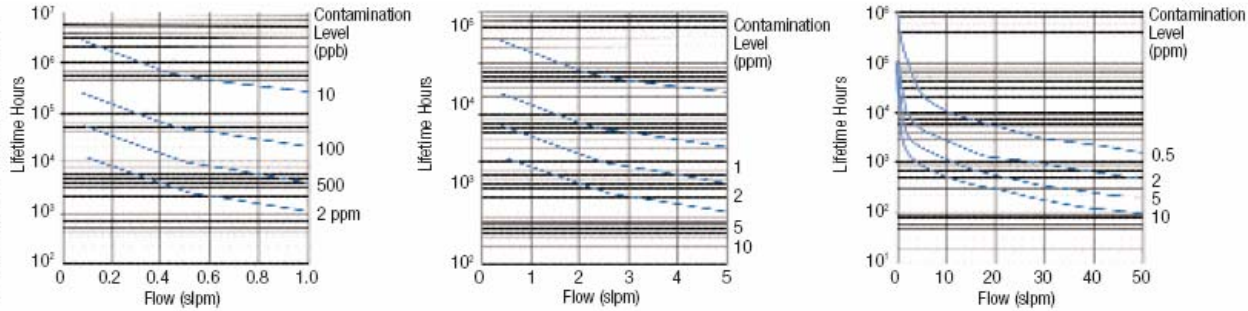


## Lifetime Curves

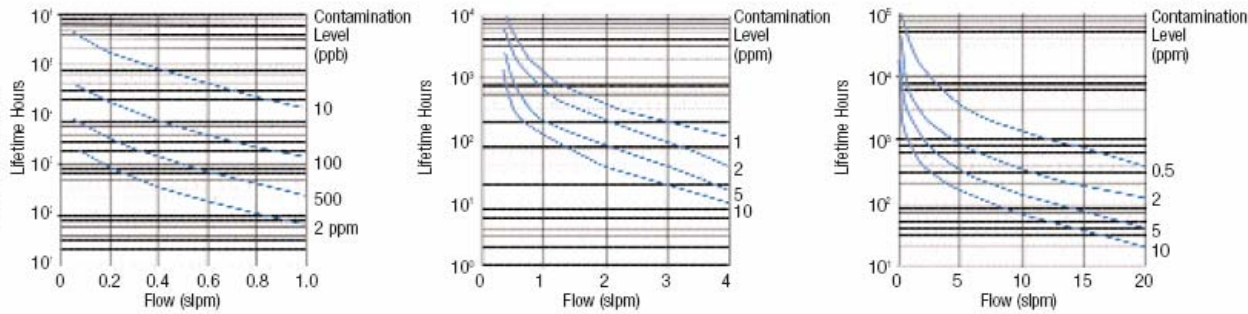
For Chloride, Oxide and Hydrogen Bromide Gases



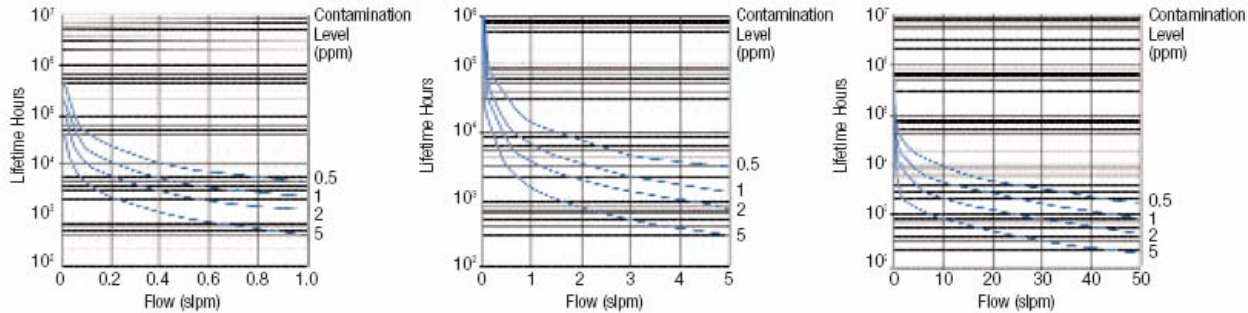
For Inert, Silane, Germane, Arsine, Phosphine, and Carbon Monoxide Gases



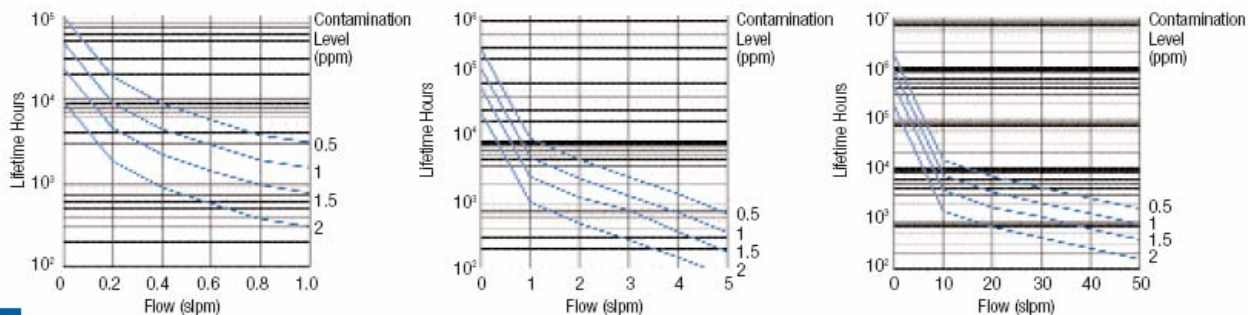
For Ammonia, Diborane, and Sulfur Hexafluoride Gases



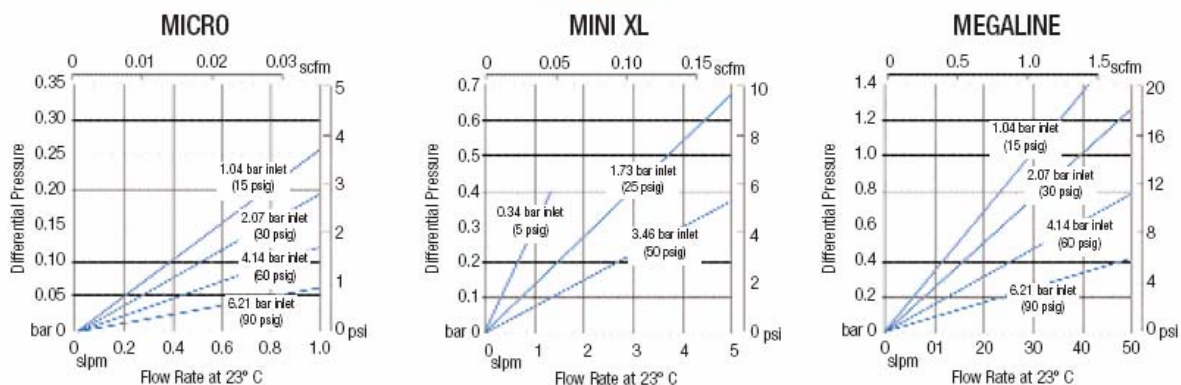
For NF<sub>3</sub> Gas



For Carbon Monoxide Gases



## Flow Rates



## Ordering Information

Purifier Type	Gas	Description	Order		
			Micro	Mini XL	Megaline
CO	Carbon Monoxide	WAFERPURE CO ¼" VCR	WPRV200C0	WPMV200C0	WPLV202C0
Oxide	Oxygen, Carbon Dioxide, Nitrous Oxide	WAFERPURE Oxide ¼" VCR	WPRV200S0	WPMV200S0	WPLV202S0
AsH <sub>3</sub>	Arsine	WAFERPURE Arsine ¼" VCR	WPRV200SA	WPMV200SA	WPLV202SA
HBr	Hydrogen Bromide	WAFERPURE HBr ¼" VCR	WPRV200SB	WPMV200SB	WPLV202SB
Chloride	Hydrogen Chloride, Chlorine, Dichlorosilane	WAFERPURE Chloride ¼" VCR	WPRV200SC	WPMV200SC	WPLV202SC
B <sub>2</sub> H <sub>6</sub>	Diborane	WAFERPURE Diborane ¼" VCR	WPRV200SD	WPMV200SD	WPLV202SD
Inert	Argon, Halocarbons (14, 116, 218), Helium, Hydrogen, Krypton, Neon, Nitrogen, Xenon, Trifluoromethane CHF <sub>3</sub> and Octafluorocyclobutane C <sub>4</sub> F <sub>8</sub>	WAFERPURE Inert Megaline ½" VCR			WPLV204SI
		WAFERPURE Inert ¼" VCR	WPRV200SI	WPMV200SI	WPLV202SI
NH <sub>3</sub>	Ammonia	WAFERPURE Ammonia ¼" VCR	WPRV200SM	WPMV200SM	WPLV202SM
NF <sub>3</sub> , SiF <sub>4</sub> , NO	Nitrogen Trifluoride, Silicon Tetrafluoride, Nitric Oxide	WAFERPURE NF <sub>3</sub> PURIFIER	WPRV200SN	WPMV200SN	WPLV202SN
Ph <sub>3</sub>	Phosphine	WAFERPURE Phosphine ¼" VCR	WPRV200SP	WPMV200SP	WPLV202SP
Silane	Silane, Germane, Trimethylsilane SiH(CH <sub>3</sub> ) <sub>3</sub>	WAFERPURE Silane ¼" VCR	WPRV200SS	WPMV200SS	WPLV202SS
SF <sub>6</sub>	Sulfur Hexafluoride	WAFERPURE SF <sub>6</sub> ¼" VCR	WPRV200SU	WPMV200SU	WPLV202SU

## Specifications

	Micro	Mini XL	Megaline
Materials	Stainless Steel VAR 316L stainless steel filtration media		
Surface Finish Internal	≤ 10 μm Ra		
Housing Design Pressure	210 bar (3000 psig) at 23°C		52 bar (750 psig) at 23°C
Particle Retention	>0.003μm		
Vapor Phase Impurity Removal	Chloride and Hydrogen Bromide purifiers: Removes moisture to < 100 ppb, tested with FTIR in Hydrogen Chloride  Inert, Silane, Germane, Ammonia, Diborane, Arsine, and Phosphine purifiers: Removes moisture and oxygen to < 1ppb, tested with APIMS in Nitrogen and Argon  Arsine and Phosphine purifiers: <10 ppb moisture and oxygen as measured in process gas  NF <sub>3</sub> purifiers: Removes moisture to <10 ppb Removes HF to <200 ppb  Oxide purifiers: Removes moisture to <10 ppb tested with APIMS  CO purifiers: Removes moisture to <10 ppb Removes Metal Carbonyls to <1 ppb, tested with GC/AED and APIMS in carbon monoxide		
Connections	1/4" and 1/2" megaline inert male fitting compatible with VCR fitting		
Leak Rating	Components tested to <1x10 <sup>9</sup> atm-cc/sec		
Maximum Flow Rate	up to 1 slpm	up to 5 slpm	20 slpm for Arsine, Phosphine, Ammonia, Diborane, 5F6 and NF <sub>3</sub> , Up to 50 slpm for all other gases
Maximum Inlet Pressure	Gas specific based on vapor pressure, but not to exceed 17 bar (250 psig) at 23°C		

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