Stand-Alone Membrane Separators

PRODUCT FEATURES / BENEFITS

- Integral Porting and Mounting Bracket
- Up to 70 LPM Flow (2.5 SCFM)
- Up to 2200 PSIG Max. Pressure Rating on All SS Units
- Hydrophobic Membrane Bonded to O-Ring for Ease of Service
- Protect On-Line Analyzers
- CNG / LNG Sampling Systems
- Sampling Conditioning

The Guardian Membrane Series is engineered to provide complete removal of entrained liquids and solids from gas samples assuring sample integrity and protecting downstream analyzers. Each unit is precision-machined from 316L stainless steel, rated for pressures up to 1,500 PSIG, and optimized for low-flow sampling applications.

Key Features:

- **High-Performance Filtration:** Hydrophobic membrane effectively blocks all liquids and particulates, allowing only gas or vapor to pass through.
- **Compact, Robust Design:** Ideal for space-constrained installations while delivering industrial-grade durability.
- **Tool-Free Maintenance:** Membrane service is fast and easy—just unthread the cap and remove the plug. No tubing or connections need to be disturbed.
- **Premium Seal:** Each unit comes with a bonded Viton O-ring to ensure a reliable, leak-tight seal.

All our Guardian Membranes are available in exotic materials: PTFE, Hastelloy C, Monel 400, and Titanium.
As an option we also offer Kalrez, EPDM, Buna and PTFE Encapsulated Viton O-rings.

Stainless Steel Model	**GMS050**	**GMS105-1/8”**	**GMS105-1/4”**
Port Size (NPT)	1/8”	1/8”	1/4”
Drain & Sample Port (NPT)	1/8”	1/8”	1/4”
Maximum Pressure (psig)	1500	1500	1500
Internal Volume (cc)			
In Sample Chamber (Behind Membrane)	1.5	3.96	3.96
Weight of Housing (lbs)	0.5	2.0	2.0
Principle Dimensions: (inch)			
Center of Port to Back	0.28	0.39	0.39
Body Diameter	1.50	2.48	2.48
Body Depth	1.29	1.83	1.83
Space Required to Remove Cap	0.79	0.87	0.87
Maximum Temp. (300ºF) Standard Viton O-Ring	GVGMS050	GVGMS105	GVGMS105
PTFE Membrane Code (1) **Specify: M1 (Low Flow) or M2 (High Flow)	MT.19.□G	MT.33.□G	MT.33.□G
Drawing **For More Detail & Options**	**GMS050**	**GMS105-1/8”**	**GMS105-1/4”**
PTFE Model Max. Pressure: 100 PSIG, Maximum Temp: 250°F	**N/A**	**GMS105P-1/8”**	**GMS105P-1/4”**

Notes: (1) Replace the “□” with the flow required. i.e. MT.19.M1G, MT.33.M2G

High Flow Membranes

For flow rates up to 15 LPM, we offer the GMS205 Series. This series maintains the user-friendly design of our GMS105 model, but incorporates a larger membrane. The increased surface area not only supports higher flow rates, but also extends service intervals by reducing membrane loading.
Standard assemblies are precision-machined from 316L stainless steel and come equipped with Viton® seals. Each unit is supplied with a hydrophobic/oleophobic membrane permanently bonded to a Viton® O-ring for reliable sealing and chemical resistance.

Material Options for Demanding Applications

All Guardian Membrane assemblies are also available in a range of exotic materials to suit challenging environments, including PTFE, Hastelloy® C, Monel® 400, and Titanium. Optional O-ring materials include Kalrez®, EPDM, Buna-N, and PTFE-encapsulated Viton® to meet specific chemical compatibility or temperature requirements.

Stainless Steel Model	**GMS205-1/4”**	**GMS205-1/2”**	**GMS305-1/8”**	**GMS305-1/4”**
Port Size (NPT)	1/4”	1/2”	1/8”	1/4”
Drain & Sample Port (NPT)	1/4”	1/2”	1/8”	1/4”
Maximum Pressure (psig)	2200	2200	1500	1500
Internal Volume (cc)				
In Sample Chamber - Behind Membrane	19.69	19.69	28.00	28.00
Weight of Housing (lbs)	7.0	7.0	9.0	9.0
Principle Dimensions: (inch)				
Center of Port to Back	0.63	0.63	0.39	0.39
Body Diameter	3.94	3.94	4.49	4.49
Body Depth (with knob)	3.03	3.03	1.85	1.85
Space Required to Remove Cap	1.38	1.38	3.70	3.70
Maximum Temp. (300ºF) Standard Viton O-Ring	GVGMS205	GVGMS205	GVGMS305	GVGMS305
PTFE Membrane Code (1) **Specify: M1 (Low Flow) or M2 (High Flow)	MT.61.□G	MT.61.□G	MT.89.□	MT.89.□
Drawing **For More Detail & Options**	**GMS205-1/4”**	**GMS205-1/2”**	**GMS305-1/8”**	**GMS305-1/4”**
PTFE Model Max. Pressure:100 PSIG, Max.Temp: 250°F	**GMS205P-1/4”**	**GMS205P-1/2”**	**GMS305P-1/8”**	**GMS305P-1/4”**

Notes: (1) Replace the “□” with the flow required. i.e. MT.61.M1G, MT.61.M2G

* We also offer a GMS205ST (Straight Through / Fast Loop) version is which the inlet/outlet ports are directly connected and the membrane only filters what the analyzer requires. *

GMS305-High Volume

The GMS305 Series features an 89 mm membrane, making it ideal for high-flow sampling systems that demand zero liquid entrainment. This model is available with either 1/8” or 1/4” FNPT connections to accommodate a variety of installation requirements.

For optimal protection and performance, the GMS305 is typically paired with a coalescing pre-filter. We recommend our 130 or 137G Series filters, depending on your system’s pressure specifications.

Flexible Port Configurations

Across the Guardian product line, mixed-port configurations are available—such as 1/8” and 1/4” FNPT on the same body—to provide installation flexibility and reduce inventory needs.

Technical Details

Our porous membranes are manufactured from pure PTFE, offering exceptional chemical inertness and extremely low absorption characteristics. Designed for reliability across a wide range of applications, these membranes are available in two standard grades to suit various flow and fluid requirements:

- **M1 (0.1 micron):** A low-flow membrane ideal for most liquid applications.
- **M2 (0.8 micron):** A high-flow variant recommended for higher surface tension liquids, enabling faster processing without compromising separation integrity.

Membrane Size	MT.19.M1G	MT.19.M2G
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	19	19
Thickness (µm)	152	152
Maximum Temperature (ºF)	300	300
Recommended Flow Rate (LPM)	0.25	6
Membrane Micron Size	0.1	0.8

Membrane Size	MT.33.M1G	MT.33.M2G
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	33	33
Thickness (µm)	152	152
Maximum Temperature (ºF)	300	300
Recommended Flow Rate (LPM)	0.35	10
Membrane Micron Size	0.1	0.8

Membrane Size	MT.61.M1G	MT.61.M2G
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	61	61
Thickness (µm)	152	152
Maximum Temperature (ºF)	300	300
Recommended Flow Rate (LPM)	2	15
Membrane Micron Size	0.1	0.8

Membrane Size	MT.89.M1	MT.89.M2
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	89	89
Thickness (µm)	152	152
Maximum Temperature (ºF)	300	300
Recommended Flow Rate (LPM)	3	43
Membrane Micron Size	0.1	0.8

The flow rates referenced above are based on a 3 PSID (pounds per square inch differential) across the membrane and are provided for general reference only. While flow can be increased by raising the pressure differential, we do not recommend exceeding 5 PSID, as doing so may compromise membrane integrity.

Membrane Application Guidance

- **M1 Membrane (0.1 micron):** Ideal for separating most liquids from gas streams.
- **M2 Membrane (0.8 micron):** Optimized for separating water and other high surface tension liquids from gases.

For best performance and membrane longevity, ensure proper pre-filtration and avoid pressure surges that could stress the membrane structure.