



"A leading worldwide supplier of high efficiency filters for a variety of industries and applications."

GMS-GUARDIAN MEMBRANE SEPARATORS

Many sample systems require zero liquid entrainment, and demand the sample not to be altered. At the heart of our Guardian Membrane Series is a porous PTFE Oleophobic membrane which is supported by a stainless steel disc. As a wet sample enters, the membrane only allows gas or vapor molecules to pass through while all liquids are stopped. Our series of membrane filters are uniquely designed to allow the operator quick and easy membrane service while providing high performance filtration. The body contains an integral mounting bracket along with the inlet, outlet, drain, and bypass connections. The threaded cap is user friendly with knurls and flats for optimum infield serviceability. No connections are broken to service the membrane disc.

Our second generation of GMS105 products also features an "Atomizer Plate" which spins the gas flow dropping much of the liquid mass out before contact is even made with the membrane. This rotation assists in keeping the membrane particle free too. We have further reduced the internal volume to minimize the sample lag time.

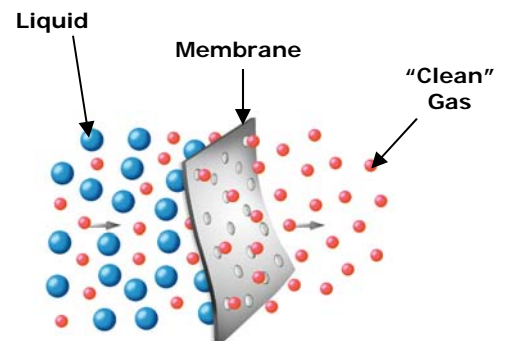
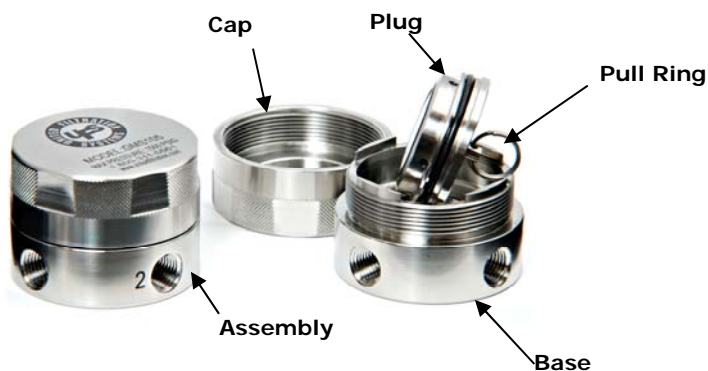


Features:

- Integral Porting And Mounting Bracket
- 316L Stainless Steel Standard: NACE MR-01-75 Compliant
- Up To 70 LPM Flow (2.5 SCFM)
- 1500 PSIG Maximum Pressure Rating On All Stainless Steel Units
- PTFE Assemblies Available
- Oleophobic And Hydrophobic Membranes Available

Applications:

- Protect On-Line Analyzers
- Gas Chromatographs
- CNG Sampling Systems
- Moisture Barrier On Critical Monitoring
- Probes, Mass Spectrometers
- Sample Conditioning



New "Pull Ring" to easily remove the plug & service the membrane.

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Our standard guardian membrane series will completely remove all entrained liquids and solids. Each housing is constructed from 316L stainless steel with pressure ratings up to 1,500 PSIG. The compact design makes them ideal for low flow sampling applications. Servicing the membrane is simple and fast with our no tool required user friendly design. Simply unthread the cap and remove the plug to replace the membrane. No connections need to be broken to replace the membrane. Each assembly is supplied with an Oleophobic Membrane bonded to a Viton O-ring.



All of 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.

TECHNICAL INFORMATION ON STANDARD MEMBRANE MODELS

Stainless Steel Model	GMS050	GMS100	GMS105-1/8"	GMS105-1/4"
Replaces Model	SM015.111	SM100.221	SM105.111	SM105.221
Port Size (NPT)	1/8"	1/4"	1/8"	1/4"
Drain & Sample Port (NPT)	1/8"	1/4"	1/8"	1/4"
Maximum Pressure (psig)	1500	1500	1500	1500
Maximum Temperature (°F)	300	300	300	300
Internal Volume (cc) In Sample Chamber-Behind Membrane	1.5	3	3.96	3.96
Weight of Housing (lbs)	0.5	1.5	2.0	2.0
Principle Dimensions: (inch)				
Center of Port to Back	0.28	0.39	0.39	0.39
Body Diameter	1.50	1.97	2.48	2.48
Body Depth	1.29	2.05	1.83	1.89
Space Required to Remove Cap	0.79	0.90	0.87	0.87
Membrane Code (1)	MT.19.□G	MT.33.□HG	MT.33.□HG	MT.33.□HG
Maximum Membrane Flow Rate	M1 (0.25 LPM) M2 (6 LPM)	M1 (0.35 LPM) M2 (10 LPM)	M1 (0.35 LPM) M2 (10 LPM)	M1 (0.35 LPM) M2 (10 LPM)
Materials Of Construction: (2)				
Head, Bowl & Internals	316LSS	316LSS	316LSS	316LSS
Seals (Standard)	Viton	Viton	Viton	Viton
Accessories:				
Buna-N Seal Set	BNGMS050	BNGMS100	BNGMS105	BNGMS105
EPDM Seal Set	GEGMS050	GEGMS100	GEGMS105	GEGMS105
Kalrez Seal Set	KZGMS050	KZGMS100	KZGMS105	KZGMS105
Viton Seal Set Standard	GVGMS050	GVGMS100	GVGMS105	GVGMS105
Mounting Bracket	N/A	MBGMS100	MBGMS105	MBGMS105
PTFE Model	GMS050P	N/A	GMS105P-1/8"	GMS105P-1/4"
Maximum Pressure: 100 PSIG				

Notes: (1) Replace the "□" with the flow required. i.e. MT.19.M1G, MT.33.M2HG
 (2) Material abbreviations: 316L=316L Stainless Steel



The GMS100 assembly uses a straight through flow path with an inlet port and drain sharing the same plane. The clean sample is on the opposite plane thus increasing efficiency and minimizing flooding. A simple collar holds the two sides (planes) of the assembly together. This user friendly design still allows the operator to service the housing without breaking any connections. This compact design is ideal for small footprint environments and allows the membrane to be mounted vertically (as pictured) or horizontally.

GMS-GUARDIAN MEMBRANE SEPARATORS

Guardian Membranes are also offered with integral coalescing pre-filters. A 50C grade element is mounted before the membrane to remove most liquids and solids, thus providing longer membrane life. This integral package minimizes dead volume, panel space, and leak points. The combo units accept the same membrane kits as our standard Guardian units. Part numbers are specified at the bottom of the attached chart.

Our Model GMS170 takes the built-in coalescing filter one step further by inverting the complete assembly and making it easy to service by eliminating the need to break port connections. Here too we reduced internal volume for better conditioning results.



GMS170

TECHNICAL INFORMATION ON MEMBRANES WITH COALESCING FILTER

Stainless Steel Model	GMS120	GMS122	GMS170
Replaces Model	SM125.111	SM125.221	N/A
Port Size (NPT)	1/8"	1/4"	1/4"
Drain & Sample Port (NPT)	1/8"	1/4"	1/4"
Maximum Pressure (psig)	1500	1500	2000
Maximum Temperature (°F)	300	300	300
Internal Volume (cc) In Sample Chamber - Behind Membrane	0.118	0.118	23.8 (Total)*
Weight of Housing (lbs)	2.0	2.0	1.5
Principle Dimensions: (inch)			
Body Diameter	2.00	2.00	2.13
Overall Length	5.08	5.08	3.19
Space Required to Coalescing Element	2.52	2.52	1.61
Coalescing Element	12-57-50C	12-57-50C	22-27-50CS
Membrane Code (1)	MT.33.□HG/50C	MT.33.□HG/50C	MT.33.□HG/170
Maximum Membrane Flow Rate	M1 (0.35 LPM) M2 (10 LPM)	M1 (0.35 LPM) M2 (10 LPM)	M1 (0.35 LPM) M2 (10 LPM)
Materials Of Construction: (2)			
Head, Bowl & Internals	316LSS	316LSS	316LSS
Seals (Standard)	Viton	Viton	Viton
Accessories:			
Buna-N Seal Set	BNGMS120	BNGMS120	BNGMS170
EPDM Seal Set	GEGMS120	GEGMS120	GEGMS170
Kalrez Seal Set	KZGMS120	KZGMS120	KZGMS170
Viton Seal Set Standard	GVGMS120	GVGMS120	GVGMS170
Mounting Bracket	MBGMS120	MBGMS120	MBGMS105/170

- Notes: (1) Replace the "□" with the flow required. i.e. MT.33.M1H/50C, MT.33.M2/50C
 (2) Material abbreviations: 316L=316L Stainless Steel
 (*) Internal Volume on the GMS 170: Inlet Side of Element: 3.9; Drain Side of Element: 19.5; Sample Side of Membrane: 0.4



The GMS120/122 series utilizes the traditional T-type design, with a coalescing pre-filter built into the assembly. The membrane is mounted on top with a vertical exit point, which assists in keeping it clean. This series utilizes a unique membrane holder plate which simply slides out from underneath the collar once it is loosened and lifted. This plate allows membrane maintenance without breaking any connections.

GMS-GUARDIAN MEMBRANE SEPARATORS

For flow rates up to 15 LPM we offer our GMS205 Series. This series uses the same user friendly design as the GMS105 series, but with a larger membrane. The increased surface area provides higher flows and also increases the time between service intervals. Our standard assemblies are machined from 316L stainless steel and supplied with Viton seals. Each assembly is supplied with an Oleophobic Membrane bonded to a Viton O-ring.

All of 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.



TECHNICAL INFORMATION ON STANDARD MEMBRANE MODELS

Stainless Steel Housing Model	GMS205-1/4"	GMS205-1/2"	GMS305-1/4"
Replaces Model	SM205.221	SM205.441	N/A
Port Size (NPT)	1/4"	1/2"	1/4"
Drain & Sample Port (NPT)	1/4"	1/2"	1/4"
Maximum Pressure (psig)	1500	1500	1500
Maximum Temperature (°F)	300	300	300
Internal Volume (cc) In Sample Chamber – Behind Membrane	19.69	19.69	28.00
Weight of Housing (lbs)	7.0	7.0	9.0
Principle Dimensions: (inch)			
Center of Port to Back	0.60	0.60	0.60
Body Diameter	3.94	3.94	4.49
Body Depth (with knob)	3.03	3.03	3.03
Space Required to Remove Cap	1.30	1.30	1.30
Membrane Code (1)	MT.61.□HG	MT.61.□HG	MT.89.□G
Maximum Membrane Flow Rate	M1 (2 LPM) M2 (15 LPM)	M1 (2 LPM) M2 (15 LPM)	M1 (3 LPM) M2 (43 LPM)
Materials Of Construction:			
Head, Bowl & Internals	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel
Seals (Standard)	Viton	Viton	Viton
Accessories:			
Buna-N Seal Set	BNGMS205	BNGMS205	BNGMS305
EPDM Seal Set	GEGMS205	GEGMS205	GEGMS305
Kalrez Seal Set	KZGMS205	KZGMS205	KZGMS305
Viton Seal Set Standard	GVGMS205	GVGMS205	GVGMS305
Mounting Bracket	MBGMS205	MBGMS205	MBGMS305
PTFE Model	GMS205P-1/4"	GMS205P-1/2"	GMS305P-1/4"
Maximum Pressure: 100 PSIG			

Notes: (1) Replace the "□" with the flow required. i.e. MT.61.M1HG, MT.61.M2HG



Our GMS305 series offers an 89 MM membrane for extremely high flow sample systems requiring zero liquid entrainment. It is available with either 1/4" or 1/2" FNPT connections.

The GMS305 is typically protected by a coalescing filter for added security. We recommend our 130 or 137G series based on the pressure needed.

Keep in mind a combination of ports are available within the complete Guardian range, i.e. 1/4" and 1/2" on the same body. We welcome your phone calls to clarify any and all information. Please do not hesitate to call us at 1-586-802-5561.

GMS-GUARDIAN MEMBRANE SEPARATORS

The GMS130 Series offers the same features as our GMS120 Series, but with a physically larger membrane and coalescing element. The added surface area of both the membrane and coalescing element will provide much longer service intervals as compared to the GMS120 Series. By having the coalescing element and membrane in one assembly we minimize sample lag time, optimize space (one housing versus two), and reduce potential leak points by having less connections.



TECHINICAL INFORMATION ON MEMBRANES WITH COALESCING FILTER

Stainless Steel Model	GMS130	GMS132	GMS137G	GMS138G
Replaces Model	SM225.221	SM225.441	N/A	N/A
Port Size (NPT)	1/4"	1/2"	1/4"	1/4"
Drain & Sample Port (NPT)	1/4"	1/4"	1/4"	1/4"
Maximum Pressure (psig)	1500	1500	100	100
Maximum Temperature (°F)	300	300	300	300
Internal Volume (cc) In Sample Chamber – Behind Membrane	2.2	2.2	2.2	2.2
Weight of Housing (lbs)	9.0	9.0	9.0	9.0
Principle Dimensions: (inch)				
Body Diameter	2.95	2.95	3.39	3.39
Overall Length	6.75	6.75	6.16	6.16
Space Required to Coalescing Element	3.95	3.95	2.75	2.75
Coalescing Element	25-64-50C	25-64-50C	25-64-50C	25-64-50C
Membrane Code (1)	MT.61.□HG/50C	MT.61.□HG/50C	MT.61.□HG/50C	MT.61.□HG/50C
Maximum Membrane Flow Rate	M1 (2 LPM) M2 (15 LPM)	M1 (2 LPM) M2 (15 LPM)	M1 (2 LPM) M2 (15 LPM)	M1 (2 LPM) M2 (15 LPM)
Materials Of Construction: (2)				
Head, Bowl & Internals	316L Stainless Steel	316L Stainless Steel	316L SS / Pyrex Glass	316L SS / Pyrex Glass
Seals (Standard)	Viton	Viton	Viton	Viton
Accessories:				
Buna-N Seal Set	BNGMS130	BNGMS130	BNGMS137	BNGMS137
EPDM Seal Set	GEGMS130	GEGMS130	GEGMS137	GEGMS137
Kalrez Seal Set	KZGMS130	KZGMS130	KZGMS137	KZGMS137
Viton Seal Set Standard	GVGMS130	GVGMS130	GVGMS137	GVGMS137
Mounting Bracket	MBGMS130	MBGMS130	MBGMS137	MBGMS137

Notes: (1) Replace the "□" with the flow required. i.e. MT.61.M1HG/50C, MT.61.M2GH/50C



The GMS137G/GMS138G series is a low pressure version of the GMS130 Series. They share the same size membrane and coalescing element by have a Pyrex glass bowl which allows at a glance monitoring of liquid collection.

GMS-GUARDIAN MEMBRANE SEPARATORS

The porous membranes are produced from pure PTFE; they are extremely inert and have very low absorption levels. There are two standard grades available for use in low to high flow applications. The M1 (0.1 micron) is a low flow type membrane suitable for most liquids and the M2 (0.8 micron) is a high flow type recommended for higher surface tension liquids.

Our **Oleophobic** membranes designated by the "H" suffix (i.e. MT.33.M2H) have an extra thin layer which repels hydrocarbons and will block both water and hydrocarbons. They exhibit the same flow rate characteristics as our standard membranes.

	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 (°F)	212	212
Recommended Flow Rate (LPM)	0.25	6
Membrane Micron Size	0.1	0.8

	MT.33.M1HG	MT.33.M2HG
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	33	33
Thickness (µm)	152	152
Maximum Temperature (°F)	212	212
Recommended Flow Rate (LPM)	0.35	10
Membrane Micron Size	0.1	0.8

	MT.61.M1HG	MT.61.M2HG
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	61	61
Thickness (µm)	152	152
Maximum Temperature (°F)	212	212
Recommended Flow Rate (LPM)	2	15
Membrane Micron Size	0.1	0.8

	MT.89.M1G	MT.89.M2G
Membrane Type	Low Flow	High Flow
Material	PTFE	PTFE
Diameter (mm)	89	89
Thickness (µm)	152	152
Maximum Temperature (°F)	212	212
Recommended Flow Rate (LPM)	3	43
Membrane Micron Size	0.1	0.8

The above flow rates are with a 3 PSID across the membrane and are for reference purposes only. The flow may be increased, but we do not recommend exceeding a 5 PSID in order to maintain the integrity of the membrane. The M1 membrane is suitable for separation of most liquids from gases. The M2 membrane is best suited for the separation of water and other high surface tension liquids from gases.