

GUARDIAN MEMBRANE SEPARATORS

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
- Liquid / Liquid Separation With SML Model

Applications:

- Protect On-Line Analyzers
- CNG Sampling Systems
- Moisture Barrier On Critical Monitoring Probes



Many sample systems require zero liquid entrainment, and demand the sample not to be altered. To obtain this goal a membrane filter should be used. A porous PTFE membrane, supported by a sintered stainless steel disc is at the heart of this unit. 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.

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.

STANDARD MEMBRANE MODELS

Stainless Steel Housing Model	SM015.111	SM100.221	SM105.111	SM105.221
PTFE Model (1)	N/A	N/A	FM105.111	FM105.221
Polypropylene Model (1)	N/A	N/A	PM105.111	PM105.221
Port Size (NPT)	1/8"	1/4"	1/8"	1/4"
Drain & Gauge Port (NPT)	1/8"	1/4"	1/8"	1/4"
Maximum Pressure (psig)	1500	1500	1500	1500
Maximum Temperature (°F)	212	212	212	212
Internal Volume	3	3	6	6
Principle Dimensions: (inch)				
Center of Port to Back	0.28	0.39	0.40	0.40
Body Diameter	1.50	2.20	2.48	2.48
Body Depth	1.26	2.05	1.75	1.75
Space Required to Remove Cap	0.90	0.90	0.90	0.90
Membrane Code (2)	MT.19.□	MT.33.□	MT.33.□	MT.33.□
Materials Of Construction: (3)				
Head, Bowl & Internals	316LSS	316LSS	316LSS	316LSS
Seals	Viton	Viton	Viton	Viton
Accessories:				
Buna-N Seal Set	BNSM015	BNSM100	BNSM105	BNSM105
EPDM Seal Set	GESM015	GESM100	GESM105	GESM105
Kalrez Seal Set	KZSM015	KZSM100	KZSM105	KZSM105
Viton Seal Set	GVSM015	GVSM100	GVSM105	GVSM105
Mounting Bracket	MBSM015	MBSM100	MBSM105	MBSM105

- Notes: (1) PTFE and Polypropylene only have a maximum pressure of 100 PSIG
 (2) Replace the "□" with the grade required. e.g. MT.19.M1 or MT.33.M2
 (3) Material abbreviations: 316L=316L Stainless Steel



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Partner of Headline Filters

GM100-2

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STANDARD MEMBRANE MODELS

Stainless Steel Housing Model	SM200.221*	SM205.221	SM205.441
PTFE Model (1)	N/A	FM205.221	FM205.441
Polypropylene Model (1)	N/A	PM205.221	PM205.441
Port Size (NPT)	1/4"	1/4"	1/2"
Drain & Gauge Port (NPT)	1/4"	1/4"	1/2"
Maximum Pressure (psig)	1500	1500	1500
Maximum Temperature (°F)	212	212	212
Internal Volume	29	29	29
Principle Dimensions: (inch)			
Center of Port to Back	0.60	0.60	0.60
Body Diameter	3.75	4.00	4.00
Body Depth	2.00	2.50	2.50
Space Required to Remove Cap	1.30	1.30	1.30
Membrane Code (2)	MT.61.□	MT.61.□	MT.61.□
Materials Of Construction: (3)			
Head, Bowl & Internals	316LSS	316LSS	316LSS
Seals	Viton	Viton	Viton
Accessories:			
Buna-N Seal Set	BNSM200	BNSM205	BNSM205
EPDM Seal Set	GESM200	GESM205	GESM205
Kalrez Seal Set	KZSM200	KZSM205	KZSM205
Viton Seal Set	GVSM200	GVSM205	GVSM205
Mounting Bracket	MBSM200	MBSM205	MBSM205

- Notes: (1) PTFE and Polypropylene only have a maximum pressure of 100 PSIG
 (2) Replace the "□" with the grade required. e.g. MT.61.M1 or MT.61.M2
 (3) Material abbreviations: 316L=316L Stainless Steel
 (*) Preliminary Data

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.

MEMBRANES WITH INTEGRAL COALESCING FILTER

Stainless Steel Housing Model	SM125.111	SM125.221	SM225.221	SM225.441
Port Size (NPT)	1/8"	1/4"	1/4"	1/2"
Drain & Gauge Port (NPT)	1/8"	1/4"	1/4"	1/2"
Maximum Pressure (psig)	1500	1500	1500	1500
Maximum Temperature (°F)	212	212	212	212
Internal Volume	30	30	110	110
Principle Dimensions: (inch)				
Body Diameter	1.96	1.96	2.95	2.95
Overall Length	5.26	5.26	6.75	6.75
Space Required to Coalescing Element	3.30	3.30	3.95	3.95
Coalescing Element	12-57-50C	12-57-50C	25-64-50C	25-64-50C
Membrane Code (1)	MT.33.□	MT.33.□	MT.61.□	MT.61.□
Materials Of Construction: (2)				
Head, Bowl & Internals	316LSS	316LSS	316LSS	316LSS
Seals	Viton	Viton	Viton	Viton
Accessories:				
Buna-N Seal Set	BNSM125	BNSM125	BNSM225	BNSM225
EPDM Seal Set	GESM125	GESM125	GESM225	GESM225
Kalrez Seal Set	KZSM125	KZSM125	KZSM225	KZSM225
Viton Seal Set	GVSM125	GVSM125	GVSM225	GVSM225
Mounting Bracket	MBSM125	MBSM125	N/A	N/A

- Notes: (1) Replace the "□" with the grade required. e.g. MT.33.M1 or MT.61.M2
 (2) Material abbreviations: 316L=316L Stainless Steel

	MT.33.M1	MT.33.M2	MT.61.M1	MT.61.M2
Membrane Type	Low Flow	High Flow	Low Flow	High Flow
Material	PTFE	PTFE	PTFE	PTFE
Diameter (mm)	33	33	61	61
Thickness (µm)	150	150	150	150
Maximum Temperature (°F)	212	212	212	212
Recommended Flow Rate (LPM)	0.35	10	1.0	70
Membrane Micron Size	0.1	0.8	0.1	0.8

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Applications:

- CNG Sampling Systems
- Protect Liquid Analyzers
- Separate Water From Liquid Hydrocarbon Streams

The SML.205.221.M3 is designed to remove water from liquid hydrocarbon streams. The membrane is constructed with a special support layer to increase pressure drop. Hydrocarbon liquids pass through the M3 microscopic passages while water and other high surface tension liquids are blocked.

Fine immiscible liquid droplets are removed from the stream while allowing the unaltered hydrocarbon liquid to pass.

MEMBRANES FOR LIQUID / LIQUID SEPARATION

Stainless Steel Housing Model	SML205.221.M3	SML205.421.M3	SML205.441.M3
Port Size (NPT)	1/4"	1/4"	1/2"
Sample Port (NPT)	1/4"	1/2"	1/2"
Maximum Pressure (psig)	1500	1500	1500
Maximum Temperature (°F)	212	212	212
Internal Volume	35	35	35
Principle Dimensions: (inch)			
Center of Port to Back	0.58	0.58	0.58
Body Diameter	3.95	3.95	3.95
Body Depth	2.60	2.60	2.60
Space Required to Remove Cap	1.35	1.35	1.35
Membrane Code	MT.61.M3	MT.61.M3	MT.61.M3
Materials Of Construction: (1)			
Head, Bowl & Internals	316LSS	316LSS	316LSS
Seals	Viton	Viton	Viton
Accessories:			
Buna-N Seal Set	BNSM205	BNSM205	BNSM205
EPDM Seal Set	GESM205	GESM205	GESM205
Kalrez Seal Set	KZSM205	KZSM205	KZSM205
Viton Seal Set	GVSM205	GVSM205	GVSM205
Mounting Bracket	MBSM205	MBSM205	MBSM205

Notes: (1) Material abbreviations: 316L=316L Stainless Steel

Stream	1.5 PSID	15 PSID
Gasoline	65 CC / Minute	650 CC / Minute
Kerosene	29 CC / Minute	290 CC / Minute
Diesel	22 CC / Minute	220 CC / Minute

Flow Rate In CC / Minute At 1.5 PSID And 15 PSID Across M3 Liquid / Liquid Membrane.
Note The Differential Must Be Lower Than Stream Pressure
For Best Results Do Not Exceed 15 PSIG Differential To Eliminate Water Breakthrough On Membrane.

	MT.33.M3	MT.61.M3
Membrane Type	H2O / HC	H2O / HC
Material	PTFE	PTFE
Diameter (mm)	33	61
Thickness (µm)	150	150
Maximum Temperature (°F)	212	212
Membrane Micron Size	0.8	0.8



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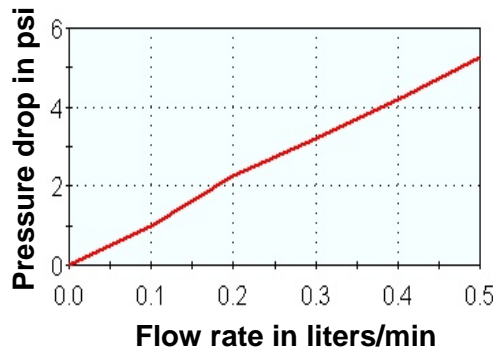
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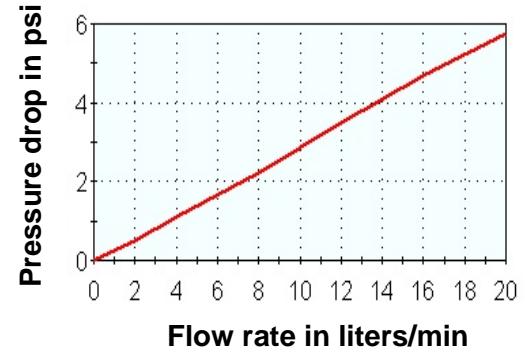
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Membrane Part #	MT.33.M1	MT.33.M2	MT.61.M1	MT.61.M2
Flow Characteristic	Low Flow	High Flow	Low Flow	High Flow
Material	PTFE	PTFE	PTFE	PTFE
Diameter (mm)	33	33	61	61
Thickness - μm (micron)	150	150	150	150
Recommended Flow Rate	0.35	10	1.0	70

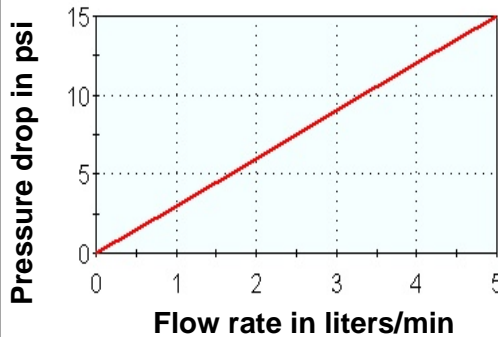
Flow vs. PSID for MT.31.M1



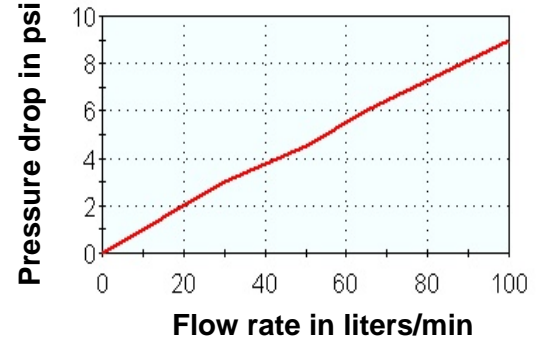
Flow vs. PSID for MT.31.M2



Flow vs. PSID for MT.61.M1



Flow vs. PSID for MT.61.M2



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**** Consult United Filtration Systems for other membranes****

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