

# GENIE MEMBRANE SEPARATOR MODEL 102A

## *Liquid Entrainment Protection for Gas Analyzers*

The Genie Model 102A provides protection against liquids for most analyzers when sample supply pressure is lower, or flow rate requirement is higher than the Model 101 can accommodate. It is recommended when only small quantities of liquid are continuously present, and/or for protection against intermittent slugs of liquid.

## GENIE MODEL 102A - FROM THE SERIES 100 FAMILY

### FUNCTION

Genie Membrane Separators remove entrained liquid and particulate in gas samples, thereby preventing contamination and/or damage to analyzers and sample system components.

### DESCRIPTION

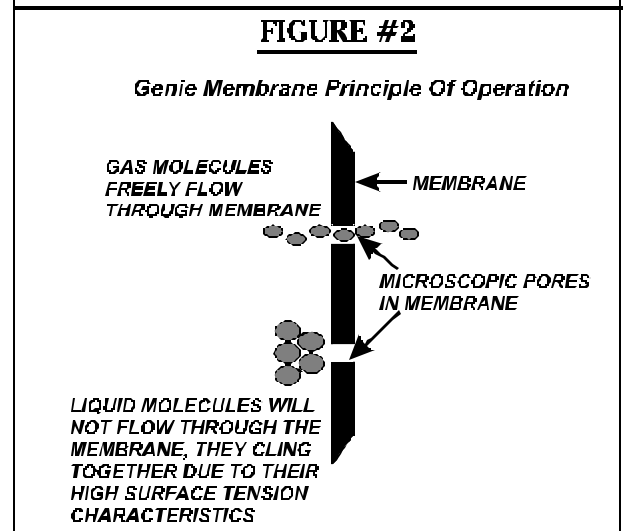
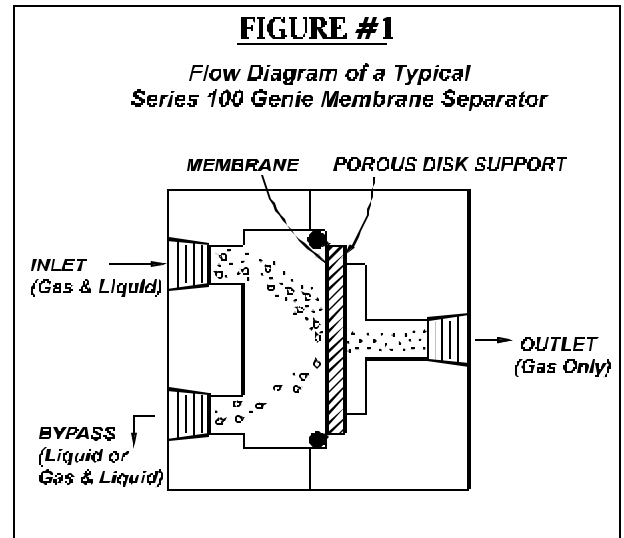
The separators consist of a housing with a porous membrane sandwiched between its two halves. The housings typically have ports labeled *inlet*, *bypass*, and *outlet*. The *inlet* and *bypass* ports are located on the upstream side of the membrane, while the *outlet* port is on the downstream side.

Gas sample enters the housing through the *inlet* port, flows easily through the membrane, and exits from the *outlet* port (see Fig. #1). Because entrained liquid cannot flow through the membrane, it is removed via the *bypass* port. If particulate is present, it is retained on the membrane. This membrane is supported by a sintered porous disk, located on the *outlet* half of the housing.

### MEMBRANE

The membrane contains microscopic passages, which permit molecules of gas or vapor to flow through with ease. This is because gas and vapor molecules are separated from each other, and are therefore able to flow through the passages individually. Liquids, on the other hand, consist of large numbers of molecules that cling tightly together. This property, called surface tension, is substantially greater for liquids than for gases or vapors. Since the liquid molecules are bound together as a "cohesive group," they cannot flow through the membrane's small passages under normal operating conditions. Because of the efficiency of this process, even the smallest aerosol droplets and particles are removed from a gas stream (see Fig. #2). Since all of the gas or vapor molecules physically flow through the membrane, the composition of the sample gas is unchanged.

The membrane construction is proprietary. It is extremely inert and recommended for applications with most process fluids, excluding hydrofluoric acid. Its extremely low absorption characteristics make it suitable for use in systems designed for PPB, PPM, and "percent level" component concentrations. Although the membrane is soft and pliable, it is very strong and durable.



# GENIE MODEL 102A SPECIFICATIONS TABLE

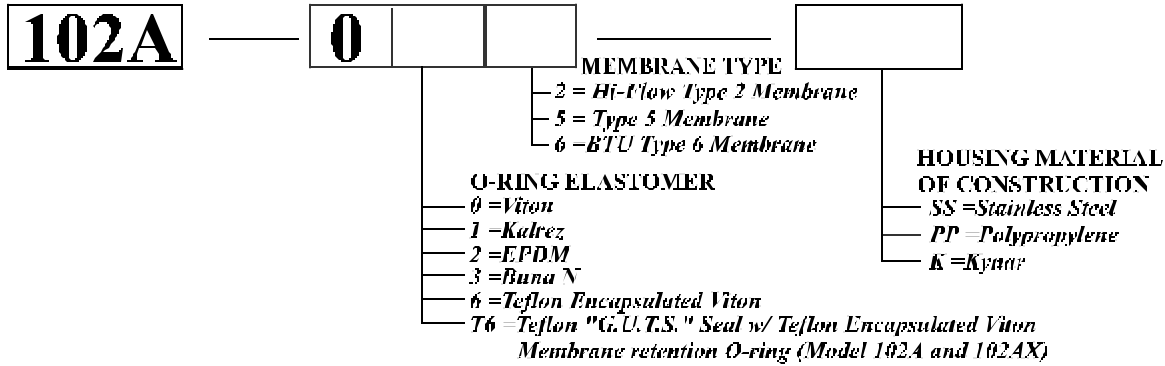
<b>MAX. HOUSING OPERATING PRESSURE <sup>1</sup> (PSIG)</b> SS <sup>2</sup> = 450    PP <sup>2</sup> = 50    K <sup>2</sup> = 50	<b>STANDARD HOUSING SEAL</b> Viton <sup>3</sup> G.U.T.S. Ready <sup>4</sup>
<b>HOUSING INTERNAL VOLUME (CUBIC INCHES) GAS</b> Inlet 1.30    Outlet 0.23	<b>NORMAL AMOUNT OF LIQUID PRESENT IN</b> Aerosol or occasional droplets
<b>MAX. OPERATING TEMPERATURE (°C)</b> ) <sup>5</sup> Type 5/6 Membrane    SS = 85    PP = 85    K = 85 Hi-Flow Membrane    SS = 150    PP = 100    K = 100	<b>MAX. RECOMMENDED FLOW RATE (CC/MIN)</b> Type 5/6 Membrane                      5,700 Hi-Flow Membrane                      75,000
<b>PORTS (FEMALE NPT) DROP <sup>6</sup> (PSI)</b> Inlet 1/8"    Outlet 1/8"    Bypass	<b>FLOW RATE vs. MEMBRANE PRESSURE</b> 1/8"    Drain 1/8"                      Δ                      (CC/MIN/  Type 5/6 Membrane= 5,700 Hi-Flow Type 2= 30,000
<b>OUTSIDE DIMENSIONS</b> 4.5" dia. x 1.4" thick	

**NOTES:**

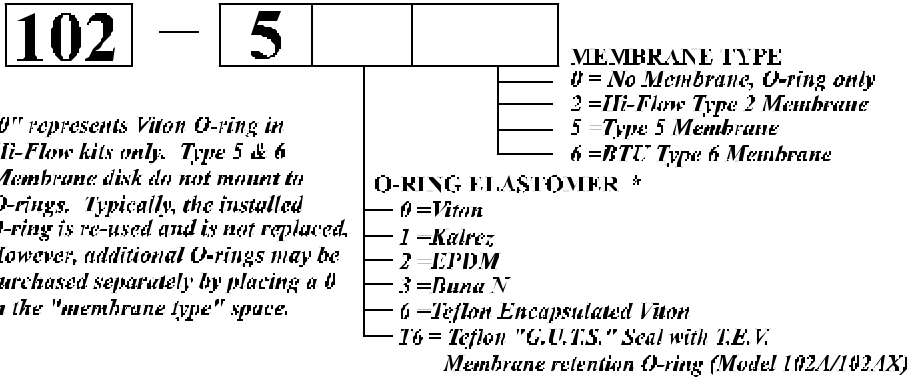
1. These pressure ratings reflect a 4:1 safety factor. If a higher operating pressure is required for an application, please consult the factory.
2. SS= Stainless Steel                      PP= Polypropylene                      K= Kynar
3. Viton O-ring is standard, but other elastomer materials are available.
4. "G.U.T.S. Ready" housings are equipped to receive the unique G.U.T.S. all teflon seal.
5. Maximum recommended flow rate of gas through the membrane. Does not include the "bypass" flow rate.
6. Flow rate in cc/minute per 1 pound pressure drop across the membrane.

# ORDERING INFORMATION

The Part Number Derived Below is for a Genie Housing w/ Membrane Installed



## GENIE MEMBRANE REPLACEMENT KIT



\* "0" represents Viton O-ring in Hi-Flow kits only. Type 5 & 6 Membrane disk do not mount to O-rings. Typically, the installed O-ring is re-used and is not replaced. However, additional O-rings may be purchased separately by placing a 0 in the "membrane type" space.

## MOUNTING BRACKET

PART NUMBER 102-109  
(Polypropylene & Kynar Genies)

PART NUMBER 102-109-SS  
(Stainless Steel Genies)

Other models available:

Series 100 Gas/Liquid Genies - 101, 102AX, 130, 130M, 130HPM, and 170

Series 200 Liquid/Liquid Genies - 205, 205HP, 210, 210X