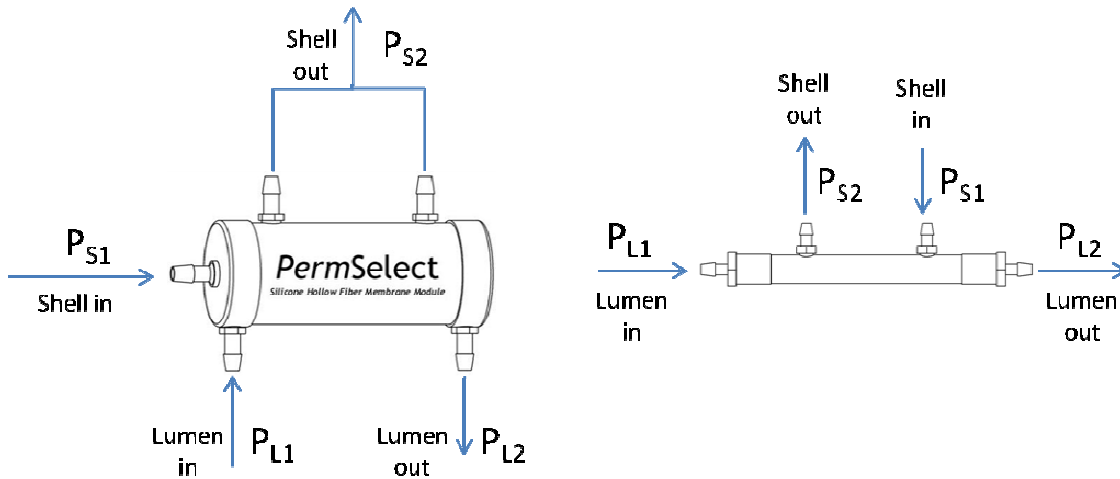


Warning! Membrane modules can fail, permitting fluid discharge into the environment and mixing of shell and tube side fluids. Users must take all precautions to ensure safety to people and property in case of module failure. Purchaser assumes all responsibility for the suitability and fitness for use as well as for the protection of the environment and for health and safety involving this product. Only persons thoroughly familiar with the use of membrane modules and your application should use this product. Please read our Terms of Sale for further information.



YES NO

Are all fluids compatible with the membrane, potting material, and other components? [] []

If you don't know, or you are not sure you may have to conduct your own testing to determine membrane suitability in your application.

Are all fluid (or vacuum) pressures within specifications listed below ***at all times***, including at startup? YES NO

$P_{S1} - P_{L1}$ and $P_{S1} - P_{L2} < 15$ psi (1 bar)	[]	[]
$P_{L1} - P_{S1}$ and $P_{L1} - P_{S2} < 45$ psi (3 bar)	[]	[]
$P_{L1} < 45$ psig (3 bar) except PDMSXA-1.0 and -2.1	[]	[]
$P_{L1} < 30$ psig (2 bar) only PDMSXA-1.0 and -2.1	[]	[]

**** Note:** Use absolute pressure in above calculations. A negative result in above calculations indicates that the pressure difference is less than stated limit, and therefore within acceptable range.

If you answered "NO" to any question above, your membrane module could fail and may not perform as expected.

We recommend using pressure gages wherever possible, and to avoid using actuated valves or clamps that upon closing can temporarily produce pressures exceeding specified limits.

Please contact us at <http://permselect.com/contact> or call (734) 769-1066 if you have questions or if you would like to discuss your application further.

Setup Hints

- As a rule of thumb, if the high pressure fluid (gas or liquid) is supplied at a pressure greater than 15 psig (1 bar), it should be flown on the tube side. Nonetheless, please abide by the checklist on the previous page.
- In liquid applications, if possible place the pump downstream from the membrane module. This will prevent over-pressurization in the module. Also the module should be placed at an elevation below the reservoir feeding the module to maintain positive hydrostatic pressure in the module.
- In liquid applications, avoid using pulsating pumps (i.e., peristaltic, diaphragm) as these may eventually contribute to membrane failure due to fatigue. If you must use a pulsating pump, use a pulse dampener to reduce pulsatility. However, it is preferable to use continuous pumps such as centrifugal or gear pumps.
- Avoid sudden gas decompression, such as in an abrupt gas pressure release.
- Avoid using clamps or valves that can temporarily block flow while the pump is running.
- Use pressure gages upstream from the membrane module to ensure pressures are not exceeded.
- In liquid-gas applications, always maintain liquid pressure equal or higher than the gas pressure to prevent gas bubbles from forming in the liquid side.
- To prevent air trapped in the module, orient the module such that liquid enters at a lower elevation and exits at a higher elevation.
- Plan ahead in case a leak develops!
 - Orient the module and tubing such that if a leak were to develop, fluid can drain or accumulate in a safe manner. Sometimes small leaks can be managed for some period of time by orienting the module properly.
 - In liquid/vacuum applications use a vacuum trap to prevent liquid from entering the vacuum pump in case a leak develops.