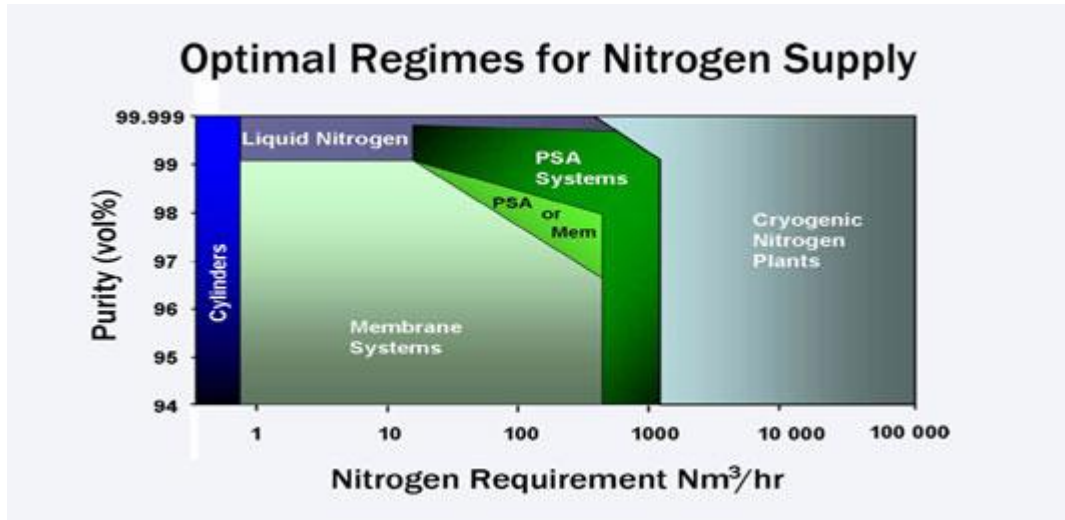


Which Type of Nitrogen Generation is suitable for you?

Dependent on purity, flow rate and a number of other considerations there are many options to supply nitrogen. The indicative optimal supply options are shown below. Consultation with Glaston Compressors will result in the preferred solution for your specific on-site nitrogen supply needs.

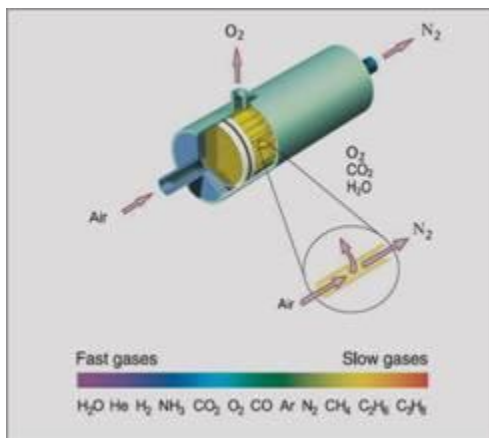


Membrane Nitrogen Generators

Optimal purity range: 90% to 99.0%

Optimal flow rate: 1-600 Nm³/h

Cost advantage over vendor-supplied liquid: up to 50%



A Membrane Separation module with its fibre bundle and the permeation rate of various gases can be seen in the diagrams.

Membrane nitrogen separation became commercially available in the early 1980s. It is the most robust of the nitrogen separation technologies. Compared to Pressure Swing Adsorption (PSA) technology, membranes use more energy, but have lower maintenance costs. Membranes are best suited for purities up to approx. 99% and nitrogen demand of up to around 600 Nm³/hr.

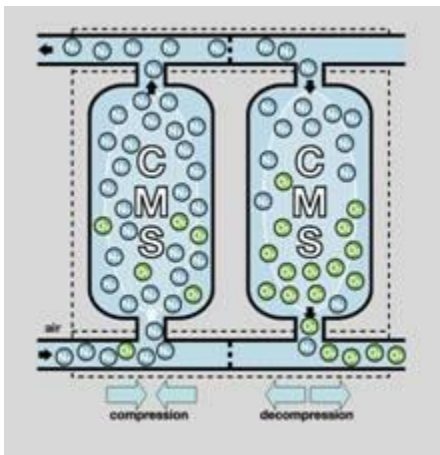
Oxygen and nitrogen in compressed air are separated by the relative speed of permeation through the side wall of hollow polymer fibres. Oxygen molecules permeate through the fibres faster than nitrogen molecules, enabling them to be selectively exhausted. Nitrogen gas purity increases as the flow proceeds down the fibres. Depending on the residence time in the membrane nitrogen purity of better than 99.99% can be achieved. However at higher purities other separation technologies are more cost effective.

PSA Nitrogen Generators

Range purity: 99% to 99.995%

Flow rate: 1-1000 Nm³/h

Cost advantage over vendor-supplied liquid: up to 50%



Pressure Swing Adsorption (PSA) is cost effective for on site-nitrogen generation at purities higher than 99% (purities as high as 99.995% are possible) and in high energy cost regions for lower purities down to 97%.

Air is separated by compression on a bed of carbon molecular sieve (CMS) which preferentially adsorbs the oxygen. At the same time in a second drum of CMS, the pressure is lowered, thus releasing the adsorbed oxygen which is exhausted. This bed of CMS now denuded of oxygen is again ready for a further compression cycle of adsorption.

For help with your Nitrogen Generation needs please contact Glaston Compressors at www.glaston.com