

N₂ MEM *advance*

N₂^{mem} is a range of high efficiency nitrogen generators that exploit the proven high tech resources for gas separation through the membrane concept, exhaustively developed to the very last state of the art. This technique is incredibly simple: it consists essentially of a tube locating a bundle of polyimide hollow fibres having proprietary porous characteristics enhancing selective diffusion of the oxygen moles out of a binary mixture, being the air essentially constituted by N₂ and O₂ molecules. Whilst feed compressed air flows alongside the internal wall of the capillaries, the nitrogen moles cannot virtually permeate as quick as the oxygen moles actually do. Because of this molecular cut-off determination, the O₂ moles will therefore diffuse at the tangent of the fibre for permeating out of the porous wall. The contact time, as a function of flow crossing speed along the length of the fibres, will refine the retentate (= N₂); resulting as such in a nitrogen-rich gas obtained at the outlet of the process plenum.

The process of permeation (= O₂ migration escaping through the porous wall) is continuously regenerative, and the permeate is gently vented to atmosphere under the form of an air stream enriched by 38 ÷ 42 % of O₂, according to the purity of the N₂ outlet phase.

The *membrane* concept is currently advisable for purities ranging from 95 % up to a physiological limit of ~ 97.5 % ÷ 98.0 %. As well the membrane is suited for applications requiring higher pressure levels up to 13 bar_(g). A membrane is however very sensible to contamination by oil and its vapour phase as well as condensate carry-over. Once polluted, a membrane cannot be rescued, and needs replacement. The impact of the sole membrane over the package cost has a great incidence.

Features and benefits are:

- extremely simple and purely static ⇒ virtually zero moving parts
- flexible mounting, light weight, compact ⇒ easy integration for customised configurations making installation indifferently possible in vertical or horizontal position; eventually by multiple modules
- broad operating pressure range ⇒ up to 13 bar_(g)
- no electrical wiring and related protections ⇒ easy to handle in hazardous area or in absence of electricity
- high reliability ⇒ attractive for narrow space or remote locations
- silent ⇒ no surge tank requirement
- virtually maintenance free ⇒ the polymer membrane fibre can last indefinitely under normal operating conditions without significant decline in performance
- environmentally friend ⇒ no obstacle for installation in quiet ambient
- no handling of cylinders / bundles, thus eliminating high cost labour ⇒ just change protection filter element periodically (every 6 months); it is a matter of a few minutes
- no cost for safety requirements by eliminating hazards related to high pressure gas cylinders / bundles ⇒ no adsorbent to dispose of
- no dependency from long term supply contracts



Models and specifications:

N ₂ MEM <i>advance</i>	N ₂ GENERATED	
	Nm ³ /h	NI/min
5020	0.9	15
6525	2.1	35
6540	4.5	75
8040	9.9	165

◀ N₂ flow rates are referred to 6 bar_(g) pressure and 95.0% purity

For further informations please contact: