

CO₂ Separation Systems GENERON[®] Membrane Technology

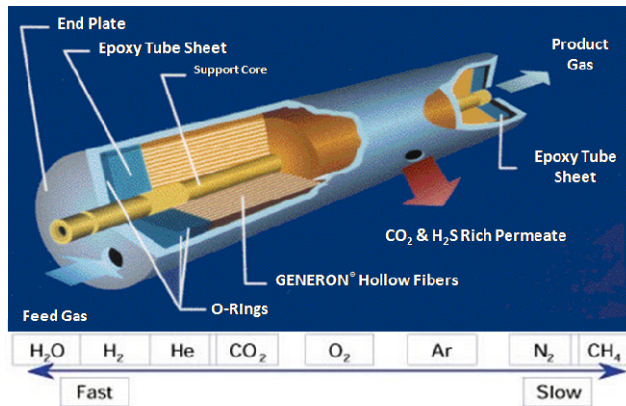


Typical Applications

- Generate Pipeline-Quality Gas from Natural Gas
- Bio / Digester Gas Purification
- Fuel Gas Conditioning
- H₂S Removal
- Syngas Conditioning
- Amine Plant Feed Gas Purification
- CO₂ Capture from Flue / Stack Gas
- EOR (Enhanced Oil Recovery)

Advantages of GENERON[®] Membranes

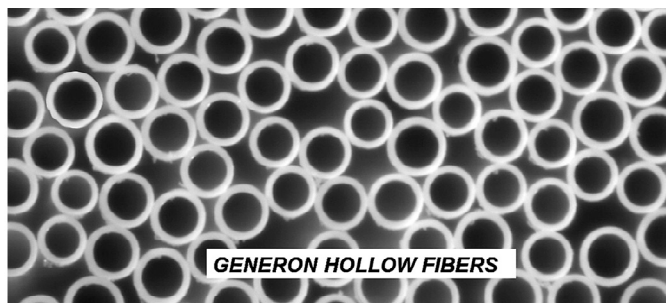
- **Flexibility:** Tolerates Widely Different Feed Gas Qualities
- **Economy:** Lowest Operating Cost, Highest Hydrocarbon Recoveries and Intelligent Purity Management
- **Convenience:** Fully Automated and Unattended Operation
- **Reliability:** Easy to Install and Maintain



Compressed feed gas is fed to the IGS membrane skid. The feed gas pre-treatment optimizes the membrane module performance and ensures long membrane life.

The CO₂ removal in the Generon[®] Membrane Modules is based on the principle of selective permeation, whereby “fast” gases such as water vapor, hydrogen, helium, carbon dioxide and oxygen quickly permeate through the fiber walls and exit the membrane module casing. Argon, Nitrogen, Methane and higher hydrocarbons do not permeate through the fiber as quickly and exit at the high-pressure product manifold.

A Flow Control Valve is used to adjust the residence time of the feed gas in the Membrane Modules and determines the CO₂ product concentration. The IGS Membrane System can be customized to operate on Customer selected pressure points that optimizes compressed gas usage.



Tom Jeffers, President and CEO of IGS:

"Membrane Technology is competing against Amine systems which are used frequently but are complex and have high capital, fuel, operating and installation costs and potential environmental issues. With our NEW UHF membrane fiber achieving the highest CO₂ selectivity in the market, we can now offer a real alternative"



IGS GENERON[®] CO₂ Removal Performance

- Feed Pressure: up to 2,000 PSIG
- Feed Temperature: up to 150 °F
- Feed Rate < 0.5 MMSCFD to > 500 MMSCFD
- Feed CO₂ Content: > 50 vol% to < 5 vol%
- Product CO₂ Content: to < 2 vol%
- Hydrocarbon Recovery: > 95%
- Product Hydrocarbon Content: to 98%

IGS GENERON[®] CO₂ Capture Performance

- Feed Pressure: up to 2,000 PSIG
- Feed Temperature: up to 150 °F
- Feed Rate: < 1 MMSCFD to > 500 MMSCFD
- Feed CO₂ Content: > 60 vol% to < 5 vol%
- Product CO₂ Content: to > 90 vol%
- CO₂ Recovery: > 90%

IGS GENERON[®] H₂S Removal Performance

- Feed Pressure: up to 2,000 PSIG
- Feed Temperature: up to 150 °F
- Feed Rate: < 1 MMSCFD to > 500 MMSCFD
- Feed H₂S Content: > 10 ppm to < 5 vol%
- H₂S Removal: > 90%

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