Honeywell UOP

GAS PROCESSING

UOP Separex™ Membrane Elements

High-performance gas separation for resource monetization

UOP Separex membrane systems separate gases such as CO_2, H_2S, H_2O, He, and H_2 from various gas streams including natural, associated, unconventional, and shale gas.

A result of continuous improvement and on-going research and development, UOP's portfolio of membrane elements is the most advanced and flexible in the industry.

- **UOP Separex Flux** offers balanced processing capacity and hydrocarbon recovery.
- **UOP Separex Flux+** provides higher processing capacity than Separex Flux.
- **UOP Separex Select** provides higher selectivity resulting in significantly higher hydrocarbon recovery compared to Separex Flux and Separex Flux+ elements.

With this broad membrane product portfolio, UOP can tailor a solution that best fits your gas processing needs for increased capacity and/or higher hydrocarbon recovery. No matter the application, UOP's enhanced membrane product portfolio will help minimize gas processing costs and/or help increase natural gas monetization.



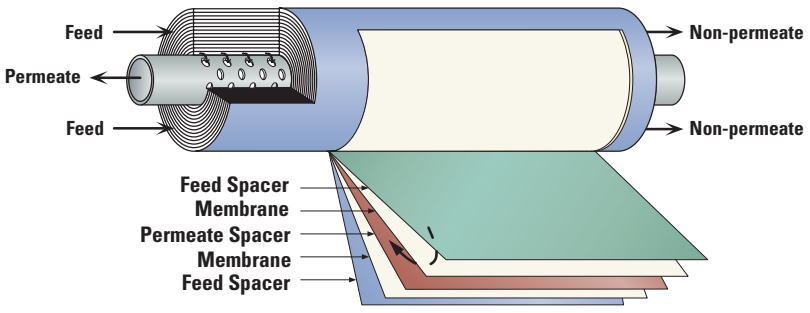
Designed to more efficiently remove contaminants or recover valuable products from natural gas streams, UOP's membrane element portfolio offers a tailored solution to help minimize gas processing costs and drive increased natural gas monetization.

Description

Decades of operation in natural gas service have demonstrated that Separex membranes are the most robust for natural gas service and can achieve the longest membrane life in the industry.

UOP membranes use a solution-diffusion-based separation process to selectively remove acid gas, water and other components from gas streams. These compounds selectively dissolve into the surface of the semi-permeable film of polymer and quickly diffuse through the membrane into a low-pressure permeate stream.

Spiral-wound Membrane



Product Name	Feature	Benefits
Flux	• Balanced capacity and selectivity	• Standard membrane element offering with balanced processing capacity and hydrocarbon recovery.
Flux+	• Higher capacity compared to Flux	For existing Separex systems: • The existing Separex system will be able to process higher gas throughput, resulting in an increase in profit. • With minimal-to-no change in existing hardware, the existing Separex system will be able to treat a higher CO_2 level at the same feed gas throughput and meet the same product specification, resulting in a capital cost saving. • Operating cost savings from debottlenecking downstream processing units by achieving a lower CO_2 specification at the outlet of the Separex system. For new Separex systems: • A capital cost savings from the reduced weight and footprint of the Separex system.
Select	• Higher selectivity compared to Flux and Flux+	For a new and existing membrane systems: • Higher profit from increased hydrocarbon recovery and reduced hydrocarbon emissions. • An increase in profit from extending the life of the well by reducing the feed gas flow rate to meet the same product gas nomination. • Reduced compressor operating costs for a multi-stage Separex system. • An increase in profit from higher gas throughput that can now be processed by the existing compressor in a multi-stage Separex system to achieve the same hydrocarbon recovery.

UOP Separex membrane elements are spiral-wound layers of membrane and spacer materials. The three UOP Separex membrane products have the same physical dimension and same element loading methodology.

In use, the elements are housed within pressure tubes, referred to as membrane housings, which, when assembled in the process scheme, form Separex membrane systems. UOP Separex membrane systems are skid mounted and provided in various configurations depending on process requirements, including single lift units for offshore applications.

Operating Range

Commercial applications have demonstrated the versatility of Separex membrane systems. Typical feed gas conditions range between 400 and 1600 psig (2700 kPag to 11,000 kPag) with CO_2 levels from 3 to 90%. Commercial systems have been designed and operated at feed flow rates ranging from 3 MMSCFD to 700 MMSCFD.



Separex membranes are easily installed without special lift requirements.



A Separex membrane system rated at 680 MMSCFD was recently installed as part of a large processing platform in the South China Sea.



Part of five existing trains installed in the Egyptian desert. The total capcity of the plant is 560 MMSCFD.

Shipping Information

The membrane elements are shipped individually packed in vacuum-sealed bags and custom cardboard packaging.

Technical Service and Solutions

UOP has the products, expertise and processes that our gas processing, refining and petrochemical customers demand for total solutions. From start to finish, our global sales, engineering, service and support staff are there to help ensure your process challenges are met with proven technology. Our extensive service offerings, coupled with our unmatched technical knowledge and experience, can help you focus on profitability.

For more information
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