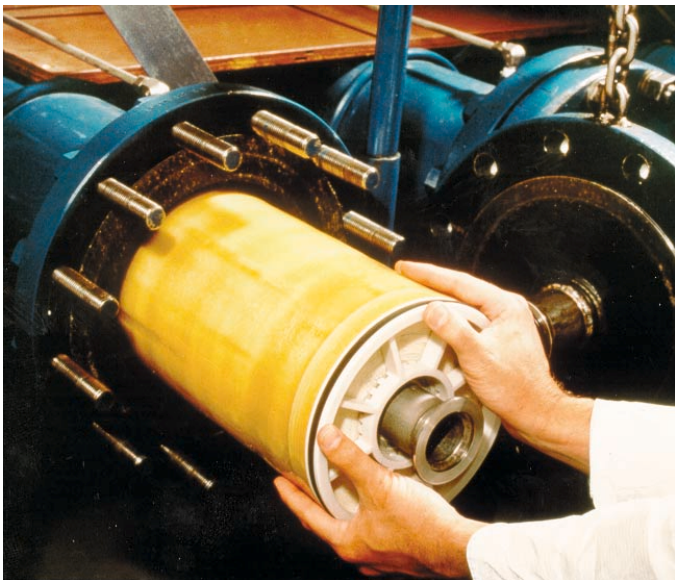




Separex membrane systems are used primarily for bulk CO₂ removal from natural gas streams. The systems are modular, skid mounted units containing either spiral wound or hollow fiber membrane elements. The elements are housed in pressure tubes in various configurations depending on system requirements.

The advantages of Separex membrane systems over conventional processes are site specific, but may include:

- Lower capital and energy costs
- Reduced space requirements, faster delivery time and lower installation costs due to smaller, lighter modular design
- Lower operating costs and limited manpower requirements due to simplified operation and maintenance
- Increased adaptability to changing feed flow and composition
- Elimination of dehydration equipment
- Faster, easier start-up and shutdown



GAS PROCESSING

SEPAREx™ MEMBRANE SYSTEMS



APPLICATIONS

Separex membrane systems are typically used in the following applications and markets:

- **Natural Gas Upgrading** – Separex membrane systems remove carbon dioxide and water vapor to pipeline specifications and lower the H₂S level. Systems can be installed either onshore or offshore, at the wellhead or at gathered facilities.
- **Enhanced Oil Recovery (EOR) Operations** – Separex membrane systems are used to recover carbon dioxide from EOR floods for recycle injection. Systems can be used as a baseload system, designed as part of the recovery plant, or as a debottlenecking unit upstream of the existing recovery plant.
- **Biogas Methane Recovery** – Separex membrane systems provide CO₂ removal and dehydration of the biogas/landfill off-gas (typically ~55% methane) to pipeline specification.

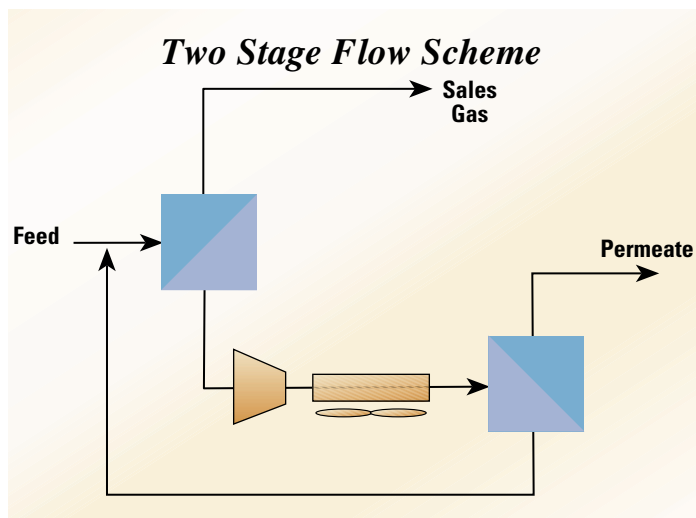
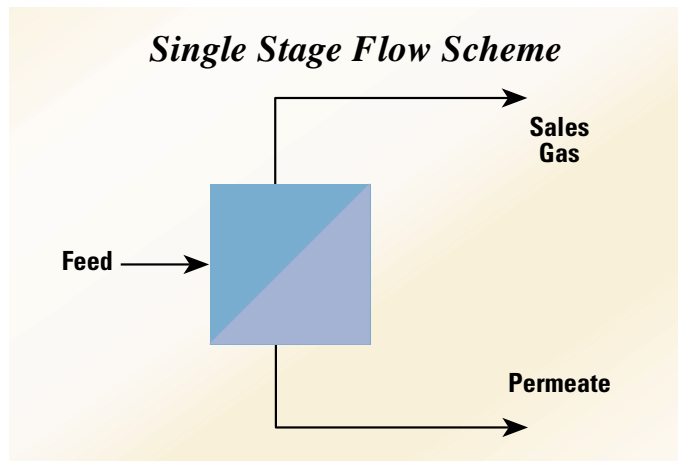
UOP offers complete membrane system design including new robust and comprehensive feed pretreatment schemes to extend membrane life. Improved pretreatment, in combination with the continuing development of advanced membranes, has even further enhanced the reliability and performance of membrane technology and made it the CO₂ removal technology of choice in a variety of processing conditions. As with all our processes, service is always readily available through UOP's worldwide technical service organization.

OPERATING RANGE

Commercial applications have demonstrated the versatility of Separex membrane systems. Typical feed conditions range between 400 and 1400 psig with CO₂ levels from 3 to ~70%. Commercial systems have been designed and operated at feed flow rates ranging from 5 MSCFD to over 250 MMSCFD, with future plans for producing 500 MMSCFD and higher.

EXPERIENCE

As of December 1999, over 75 Separex membrane systems have been put into operating service.



FOR MORE INFORMATION

For more information, contact your local UOP sales office or UOP's Gas Processing business in the USA at:

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Fax: 713-744-2880

E-mail: GasProc@uop.com

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