ProSep Inc.

TOGETHER CREATING PURE OIL, GAS AND WATER

NITROGEN GENERATOR SYSTEMS

ProSep Inc., offers high-efficiency membrane separators for nitrogen generation, both to the oil and gas industry and the shipping industry. Through cooperation with leading membrane manufacturers, ProSep Inc., has access to state-of-the-art hollow fiber membrane technology. These experienced manufacturers are the market leaders in the areas of development, manufacturing and supply of nitrogen membranes to the international process industry.

SYSTEM DESIGN

The ProSep Inc., Membrane System is designed to generate dry nitrogen from compressed feed air. A typical turnkey system consists of the following components:

- Feed air compressors (if required)
- Feed air filter
- Feed air heater
- Membrane separators
- Piping and valves

The system has the following specifications:

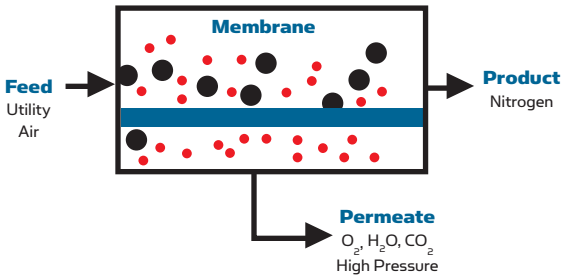
- Product capacity: 10-2000 Nm^3/h
- Product purity: 90-99.9%
- Product pressure: Up to 14 barg without product compression

BENEFITS

- Low maintenance frequency
- Automatic operation at normal conditions
- Normal maintenance without shut-down requirements
- Easy installation and hook-up
- Adjustable purity

TECHNOLOGY

NITROGEN MEMBRANE SYSTEM



Air at atmospheric pressure enters into the compressor through an intake filter and is compressed to the desired pressure. The compressed air is then dried, purified, and heated to the operating temperature. The membranes selectively remove O_2, H_2O, and CO_2 from the feed, leaving a nitrogen-rich stream as the primary product, as shown in the illustration.

Air separation is accomplished through a solution-diffusion mechanism in modules of hollow fiber polymeric membranes. Each module contains several hundred thousand of these fibers in bundles. Air fed under pressure to one side of the membrane dissolves in and diffuses across the polymeric material. It desorbs as permeate at the lower pressure side of the membrane. Each constituent dissolves in the polymer matrix to a different extent and permeates at a different rate.

As a result, the more rapidly permeating components such as O_2, CO_2, and water vapor will concentrate in the low pressure steam, which is safely vented to the atmosphere. The more slowly permeating components (e.g. nitrogen and argon) are retained in the high pressure stream and are removed as the inert gas product.

CONTROL AND BACKUP SYSTEMS

The controls are normally selected in close cooperation with the client, based on requirements for purity product pressure, flow rate and turndown. Both manual and automatic control systems may be employed. Monitoring may be local or integrated in the central plant control system.

ProSep Inc., can also offer compressors and buffer tanks downstream nitrogen membranes, in order to meet demands during peak production periods.

REFERENCES

Available upon request.

FOR MORE INFORMATION

Contact your nearest ProSep Inc., office.

ProSep TECHNOLOGIES, Inc.
5353 W. Sam Houston
Parkway N., Ste. 150
Houston, Texas 77041, USA
Tel: 1 281 504 2040
E-mail: sales@prosep.com
www.prosep.com

ProPure A PROSEP INC. COMPANY
Kokstaddalen 4
N-5257 Bergen, Norway
Postal address:
PO Box 106
N-5863 Bergen, Norway
Tel: 47 55 52 94 00
E-mail: sales@propure.com
www.propure.com

ProPure ME A PROSEP INC. COMPANY
Trust Tower, Third Floor
Building No. 125, Road No. 1702
P.O. Box No. 2215
Diplomatic Area, Manama, Bahrain
Tel: +973 16 500 705
E-mail: sales@propure.com
www.propure.com

ProSep AP A PROSEP INC. COMPANY
ProSep AP Sdn Bhd
Unit 19A-10-2, Wisma UOA
No 19 Jalan Pinang
50450 Kuala Lumpur, Malaysia
Tel: +603 2715 6680
E-mail: sales@prosep.com
www.prosepinc.com