

# PRISM<sup>®</sup> PA6050-P3

## Nitrogen membrane separator module



A typical membrane separator contains thousands of fibers that are bundled and encased at both ends in epoxy resin. The ends of the bundles are cut, which leaves the fiber bores open on both ends, allowing the gas to travel from one end to the other. The bundles of fibers are enclosed in a suitable casing. The casing protects the fibers and routes the gas properly.

**Air Products' PRISM membranes: experience, performance, and value.**

Air Products' PRISM PA membrane separators are a cost-effective way to manufacture a continuous stream of nitrogen on-site. Using only compressed air, these robust modules use selective permeation to separate nitrogen molecules from oxygen, argon, carbon dioxide and water vapor. The resulting stream of nitrogen is purified and dry, ready for use in most industrial applications.

The P3 separators have the highest nitrogen recovery (lowest feed air requirement) of any nitrogen membrane separator on the market.

### Features/benefits

#### Durability included

The PA6050-P3 separator is manufactured from high-strength aluminum which can withstand some of the most grueling environments. Many of our separators see service cycles longer than ten years of continuous operation.

#### Flexible application

PRISM membrane separators can be mounted vertically or horizontally to meet your design requirements. Separators are available in a variety of configurations (see ordering information).

**Enriched oxygen production:** PRISM PA membrane separators can be used to produce oxygen-enriched air, with oxygen levels ranging from 25%–50% purity. Contact our Technical Services department for system requirements.

## Quality assured

Every membrane separator has to pass our rigorous testing requirements before it will be released into service. You can be confident that every separator will perform as advertised. Our AS9100 certification meets the exacting requirements of the global aerospace industry for quality management systems.

## Industrial grade

PRISM membrane separators are designed to handle industrial production loads. Pressures up to 24 barg ensure that your nitrogen production requirements will be met. The solid construction is a perfect match for remote and severe-duty installations like oil platforms and mining operations.

## Passive technology

The selective permeation technology uses a passive system with no moving parts. This simple system allows you to engineer more reliable products that can be deployed in a wide range of environments, including mobile systems.

## Simple start-up

PRISM membrane separators are easily commissioned. Simply apply compressed air, and production begins. No break-in period, expensive media, or complex equipment to manage and maintain.

## Lightweight

Weighing only 18.5 kg, the PA6050-P3 modules are easily handled by one person, making installation and field service simple.

## Performance Specifications\*

Purity	99.5%	99.0%	98.0%	97.0%	96.0%	95.0%
5 barg	2.8	3.7	5.1	6.4	7.8	9.2
7 barg	4.5	6.0	8.3	10.4	12.6	15.0
9 barg	6.4	8.4	11.6	14.7	17.7	21.0
12 barg	9.3	12.2	16.9	21.2	25.7	30.3
15 barg	12.2	16.1	22.3	28.0	33.8	39.9

Nitrogen flow in normal cubic meters per hour @55°C.

Purity	99.5%	99.0%	98.0%	97.0%	96.0%	95.0%
5 barg	12.0	13.1	14.7	16.3	17.8	19.4
7 barg	17.7	19.4	22.0	24.5	26.9	29.5
9 barg	23.4	25.8	29.6	33.0	36.4	40.0
12 barg	32.2	35.6	41.1	46.0	51.0	56.1
15 barg	41.0	45.6	52.8	59.3	65.8	72.5

Feed air flow in normal cubic meters per hour @ 55°C.

## Ordering Information

Catalog Number	Model Number	Product Description
177107	PA6050-P3-8C-D2	PRISM PA separator with 1-inch SAE connections
177109	PA6050-P3-8B-D2	PRISM PA separator with 1-inch BSPP connections
411677	PA6050-P3-8C-D4	PRISM PA separator with 1-inch SAE connections (does not include permeate port fitting)
411676	PA6050-P3-8B-D4	PRISM PA separator with 1-inch BSPP connections (does not include permeate port fitting)

\* Performance listed for single module only. Contact our Technical Services department to receive detailed performance charts or to generate computer simulations for your specific production requirements.

## Feed air requirements

The compressed air should be treated to remove condensed liquids, entrained mists, and solid particulates before entering the membrane separator. Pretreatment steps typically include compressed air cooling, liquid knockout and filtration. Inlet air temperature and pressure control are required to ensure stable and consistent performance.

### Mechanical Design Limits

Design pressure	27.6 barg
Design temperature	82.2°C

### Operating Limits

High temperature	15.5 barg @ 82.2°C
Medium temperature	20.7 barg @ 65.6°C
Low temperature	24.1 barg @ 54.4°C

### Materials

Shell tube	6061-T6 Aluminum
Shell ends	6061-T6 Aluminum
End caps	6061-T6 Aluminum

### Weight | Dimensions | Connections

Length	1630 mm
Width	171 mm
Height	188 mm
Weight	18.5 kg
Connection for 177107/411677	1" SAE [ISO 11926-1, size -16]
Connection for 177109/411676	1" BSPP [ISO 1179, ISO 228 G 1]

#### WARNINGS:

Gaseous nitrogen is colorless, odorless, inert, tasteless, noncorrosive, and nonflammable. Nitrogen is nontoxic but can act as an asphyxiant by displacing the necessary amount of oxygen in the air to sustain life (a minimum of 19% oxygen is required for life support). Safety procedures must be established and followed before entering any enclosed or poorly ventilated area containing nitrogen-generating equipment or piping. The nitrogen gas generated by the membrane cannot support life.

For more information regarding  
Air Products' PRISM membrane  
products, please contact our Customer  
Service department.

**Air Products PRISM Membranes**

11444 Lackland Road  
Saint Louis, Missouri 63146 USA  
T 314-995-3300  
F 314-995-3500  
Membrane@airproducts.com  
or visit [airproducts.com/membranes](http://airproducts.com/membranes)

**Permea China LTD**

60 Jinshajiang Road  
Shandong, 264006 China  
T +86-535-2165333  
F +86-535-2165336  
fungp@airproducts.com  
or visit [permea.com.cn](http://permea.com.cn)

**Air Products Japan, Inc.**

21F, Muza Kawasaki Central Tower  
1310 Omiya-cho, Saiwai-Ku, Kawasaki  
Kanagawa, Japan 212-8554  
T +81-44-542-1531  
F +81-44-542-1521  
higucht@airproducts.com  
or visit [airproducts.co.jp](http://airproducts.co.jp)

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The Air Products PRISM Membranes  
Business Unit's quality management  
system is certified to ISO9001 and  
AS9100C.



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