

PRISM[®] Membrane Separators

PA1010 & PA1020

Separators for Nitrogen



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

PRISM PA1010 & PA1020 Membrane Separators deliver exceptional value and benefits to OEM customers and end users. Severe duty construction, solid performance, and exceptional lifetime, make these nitrogen separators the choice for all industrial applications.

Benefits

Industrial Grade

PRISM Membranes PA1010 and PA1020 separators are constructed with heavy gauge ABS shells and aluminum caps which makes them extremely durable for applications where equipment is operating in all types of conditions. Yet, they are light enough to be handled without the need for secondary lifting equipment.

Design Flexibility

Design engineers have increased flexibility in fabricating the nitrogen-membrane systems to meet specific needs, thanks to the options of several fiber types. Use N1 fiber to build a high volume nitrogen system. Highly durable N2 fiber addresses high-cycling applications. Use P3 fiber when you need fewer separators to build compact systems, or when air supply is limited.


Reliable Operation

PRISM membrane separators are field proven in the most demanding applications and environments, like offshore platforms and mining operations. The high-quality membrane fiber offers superior resistance to common feed stream contaminants.

PA1010-N1/N2

Product Flow Rate (Nm³/hr) / Feed Air Flow Rate (Nm³/hr)

Nitrogen Purity (%)




Pressure (BARG)	Nitrogen Purity (%)						
	99.5%	99%	98%	97%	96%	95%	
5	0.022/0.167	0.031/0.178	0.047/0.197	0.062/0.214	0.078/0.231	0.095/0.250	
9	0.052/0.317	0.073/0.342	0.108/0.382	0.141/0.420	0.175/0.458	0.212/0.498	
15	0.100/0.545	0.140/0.592	0.206/0.668	0.268/0.738	0.331/0.808	0.398/0.882	

feed air temperature 55°C

PA1010-P3

Product Flow Rate (Nm³/hr) / Feed Air Flow Rate (Nm³/hr)

Nitrogen Purity (%)




Pressure (BARG)	Nitrogen Purity (%)						
	99.5%	99%	98%	97%	96%	95%	
5	0.014/0.063	0.018/0.068	0.026/0.078	0.033/0.086	0.040/0.094	0.048/0.103	
9	0.032/0.124	0.043/0.136	0.061/0.157	0.077/0.175	0.094/0.194	0.111/0.214	
15	0.064/0.218	0.084/0.242	0.118/0.281	0.149/0.316	0.180/0.351	0.213/0.388	

feed air temperature 55°C

PA1020-N1/N2

Product Flow Rate (Nm³/hr) / Feed Air Flow Rate (Nm³/hr)

Nitrogen Purity (%)



Pressure (BARG)	Nitrogen Purity (%)						
	99.5%	99%	98%	97%	96%	95%	
5	0.08/0.57	0.11/0.61	0.17/0.67	0.22/0.73	0.27/0.79	0.33/0.85	
9	0.19/1.09	0.26/1.17	0.38/1.30	0.49/1.43	0.61/1.55	0.73/1.69	
15	0.35/1.87	0.49/2.02	0.72/2.28	0.93/2.51	1.14/2.74	1.37/2.99	

feed air temperature 55°C

Performance listed for single membrane separator module. Contact our Technical Services department to receive detailed performance recommendations or to generate computer simulations for your specific production requirements.

Feed Air Requirements

Pre-treatment steps differ by application but typically include cooling, filtration, temperature control, and pressure control. Consult Design-and-Reference manual for detailed information associated with these products.

Materials

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

Mechanical Design Limits

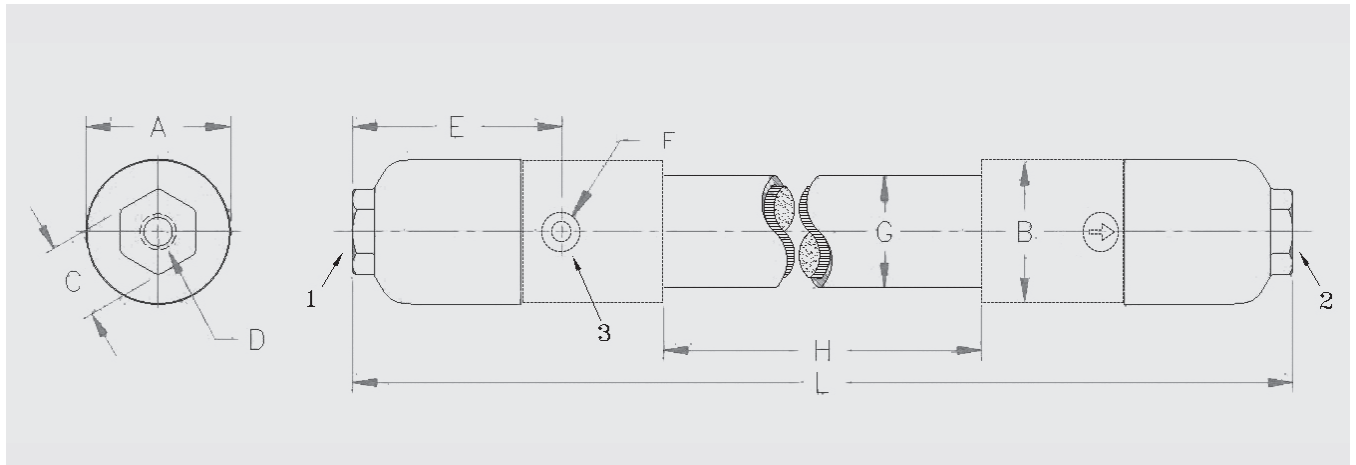
Design pressure	26.5 barg
Design temperature	65.5°C

Typical Operating Range

Pressure	3 barg to 20 barg
Temperature	5°C to 55°C

Consult our Technical Services department for specific limits for your application.

Dimensions



Part No	Model No.	D	H	L	Weight	A	B	C	E	F	G
199935	PA1010-N1-2A-00	1/4" NPT	3.82" (97.0 mm)	11.88" (301.8 mm)	1.1 lb (0.5 kg)	2.16" (54.9 mm)	1.13" (28.7 mm)	1.38" (35.1 mm)	3.15" ±.06 (79.5 ± 1.5 mm)	1/4" NPT	1.66" (42.2 mm)
412433	PA1010-N2-2A-00		3.82" (97.0 mm)	11.88" (301.8 mm)	1.1 lb (0.5 kg)						
107000	PA1010-P1-2A-00		3.82" (97.0 mm)	11.88" (301.8 mm)	1.1 lb (0.5 kg)						
199787	PA1010-P3-2A-D0		3.82" (97.0 mm)	11.88" (301.8 mm)	1.1 lb (0.5 kg)						
199933	PA1020-N1-2A-00	1/4" NPT	16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)	2.16" (54.9 mm)	2.10" (53.3 mm)	1.13" (28.7 mm)	3.13" ±.06 (79.5 ± 1.5 mm)	1/4" NPT	1.66" (42.2 mm)
412434	PA1020-N2-2A-00		16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)						
107001	PA1020-P1-2A-00		16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)						
431485	PA1020-P3-2A-D0		16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)						
199934	PA1020-N1-2B-00	1/4" BSPP	16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)	2.16" (54.9 mm)	2.10" (53.3 mm)	1.13" (28.7 mm)	3.13" ±.06 (79.5 ± 1.5 mm)	1/4" NPT	1.66" (42.2 mm)
412435	PA1020-N2-2B-00		16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)						
107002	PA1020-P1-2B-00		16.71" (424.4 mm)	26.00" (660.4 mm)	1.6 lb (0.7 kg)						

WARNINGS:

Gaseous nitrogen is colorless, odorless, inert, tasteless, non-corrosive, and non-flammable. Nitrogen is non-toxic but can act as an asphyxiant by displacing the necessary amount of oxygen in the air required to sustain life. 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 PRISM Membrane separators, please contact our Technical Services department.

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PRISM membrane separators are available through two channels:

Air Products Prism Membranes sells and distributes membrane separators through Original Equipment Manufacturing (OEM) arrangements. This global network of value-added-resellers integrates the PRISM Membrane gas separators into systems for a variety of applications, from food preservation to scuba diving air. If you have an interest in using PRISM membrane separators in your gas generation systems, please contact our Business Development specialists.

Fully-assembled membrane systems are available through the Air Products Engineered Systems group. Each nitrogen system is fabricated to highest engineering classifications. These are the same nitrogen-membrane systems that Air Products uses in its own facilities, so you can be sure that the quality and performance meets the highest standards.

We look forward to working with you.

Reasons why our membrane separators are the best on the market

1. Low total costs

- Lowest air consumption membrane separator on the market across the widest portfolio of product offerings.
- Broad operating range enables flexible design and optimization.
- More than 35 years of experience designing the most cost effective systems.

2. Quality & Reliability

- USA-based manufacturing with quality systems certified to AS9100 and ISO9001 standards.
- Trusted in critical applications like aircraft fuel tank inerting, shipboard/offshore systems, and refinery operations.
- Longest demonstrated lifespan.

3. Technical Support

- Access to experts at membrane@airproducts.com or +1-314-995-3300.
- Specialized experience in troubleshooting and development support.
- Capabilities to customize or develop new membrane products.

The information contained in this document is believed to be true and accurate at time of publication. Air Products PRISM Membranes reserves the right to change product specifications without notification. Please consult current *Product Design and Reference* manual for detailed information associated with these products.

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