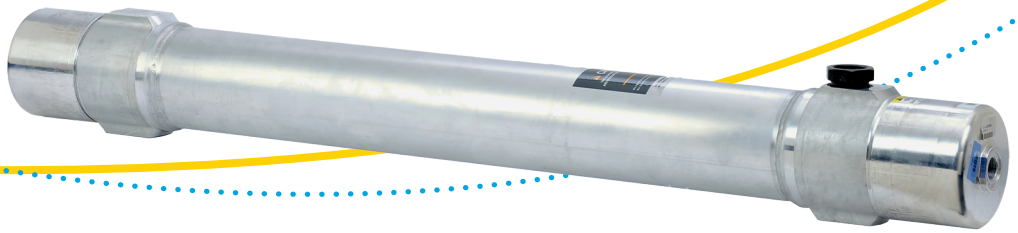
PRISM® PB6050-P3
Membrane Separator for biogas upgrading



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 which protects the fibers and routes the gas properly.

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

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

Features/benefits

Durability included

The PB6050-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).

Quality assured

Every membrane separator has to pass our rigorous testing requirements before it will be released into service. Our AS9100C 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 18 barg (261 psig) ensure that your biogas upgrading requirements will be met. The solid construction is a perfect match for remote and severe-duty installations.

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.

Simple start-up

PRISM membrane modules are easily commissioned. Simply apply compressed gas, and production begins. No break-in period, expensive media, or complex equipment is required.

Lightweight

Separators are easily handled by one person, making installation and field service simple.

High Methane Recovery Configuration

		Raw Biogas	Biomethane	Vent
Composition				
Methane	mol%	55.0	98.0	0.3
Carbon Dioxide	mol%	45.0	2.0	99.7
Flow	nm^3/hr	60.0	33.6	26.4
Pressure	barg	12.0	11.8	0.0

Power = 0.22 $kW/nm^3/hr$ raw biogas
Methane recovery = 99.8%

Low Power Configuration

		Raw Biogas	Biomethane	Vent
Composition				
Methane	mol%	55.0	98.0	7.0
Carbon Dioxide	mol%	45.0	2.0	93.0
Flow	nm^3/hr	120.0	63.3	56.7
Pressure	barg	12.0	11.8	0.0

Power = 0.15 $kW/nm^3/hr$ raw biogas
Methane recovery = 94%

** Systems typically include multiple modules in parallel for greater flow rate and series for greater purity requirement.*

Ordering Information

Catalog Number	Model Number	Product Description
433385	PB6050-P3-8B-D9	PRISM PB separator with 1-inch BSPP end cap connection, $1^1/_2$-inch BSPP permeate port, aluminum shell and caps
439850	PB6050-P3-8C-DA	PRISM PB separator with 1-inch SAE end cap connection, $1^1/_2$-inch SAE permeate port, aluminum shell and caps

Feed gas requirements

The compressed biogas should be treated to remove any condensed liquids, entrained mists, siloxanes, and solid particulates before entering the membrane separator. The degree of cleanup required depends upon the particular contaminants present and the effects those contaminants will have on the performance and lifetime of the membrane separator. Pretreatment steps typically include cooling, filtration, and final temperature and/or pressure control.

Mechanical Design Limits

Design pressure	18.0 barg
Design temperature	82.2°C
MDMT	–15°C

Materials

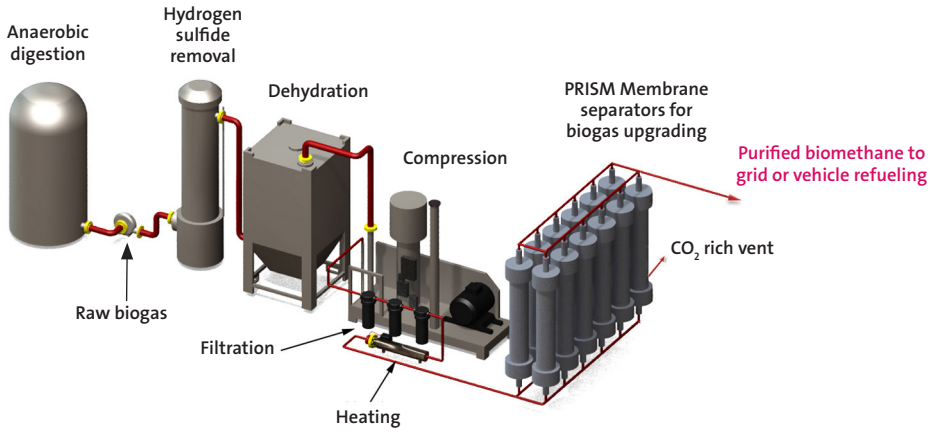
Shell	6061-T6 Aluminum
Shell ends	6061-T6 Aluminum
End caps	6061-T6 Aluminum

Weight | Dimensions

Length	1629.9 mm
Width	170.7 mm
Height	214.1 mm
Weight	27.4 kg

WARNINGS:
The gases processed in this equipment may be hazardous. Local regulations may apply. For your safety, use sound engineering practices for design and operation.

Typical Biogas Process Flow



For illustration purposes only. Components not to scale.
Pretreatment options vary by application.

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

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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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