

# PRISM<sup>®</sup> PE6040

## Membrane air dryer



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: experience, performance, and value.**

Air Products' PRISM<sup>®</sup> PE membrane dryers are a cost-effective way to manufacture a continuous stream of dry air on-site. These robust dryers use selective permeation, a passive technology, to separate water vapor from the air stream.

The adjustable external purge allows each membrane air dryer to be precisely customized to match the required product stream specification. The external dry purge gas flow is controlled by a customer-supplied orifice or adjustable valve. PE dryers are supplied with a 360-degree swivel purge gas inlet fitting.

PRISM PE membrane dryers excel in air supply applications requiring up to 300 scfm per separator, offshore, point-of-use, and marine applications. These maintenance-free and compact dryers work in areas where desiccants and refrigeration units are not practical.

### Features/benefits

#### Durability included

The PE6040 membrane dryer is manufactured with durability and performance in mind. The passive technology uses no electricity, which makes it ideal for use in remote applications, mobile compressor stations, or on construction sites. Built from high performance aluminum, the PE6040 membrane dryer withstands the most grueling environments. Many of our dryers are in service longer than ten years.

#### Flexible application

PRISM PE membrane dryers can be mounted vertically or horizontally to meet your design requirements.

Multiple dryers in parallel are used to increase capacity beyond that available with a single dryer. Note: all of the dryers must be the same model and piping must be configured so that the feed air is distributed evenly between the parallel dryers.

## Quality assured

Every membrane dryer has to pass our rigorous testing requirements before it will be released into service.

You can be confident that every dryer will perform as advertised.

Our AS9100C certification meets the exacting requirements of the global aerospace industry for quality management systems.

## Industrial grade

PRISM PE membrane dryers are designed to handle industrial production loads. Pressures up to 13.8 barg (200 psig) ensure that your air 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 dryers are easily commissioned. Simply apply clean, compressed air, and production begins. No break-in period, expensive media, or complex equipment to manage and maintain.

## Lightweight

Weighing only 13.6 kg (30 lbs), the PE6040 dryers are easily handled by one person, making installation and field service simple.

## Performance Specifications\*

| Pressure Dew Point | Feed Flow | Outlet Flow | Outlet Purge | Pressure Drop |
|--------------------|-----------|-------------|--------------|---------------|
| 40°F               | 196 scfm  | 169 scfm    | 14%          | 6.3 psi       |
| 20°F               | 168 scfm  | 140 scfm    | 16.9%        | 5.4 psi       |
| 0°F                | 125 scfm  | 102 scfm    | 18.7%        | 3.9 psi       |
| -20°F              | 102 scfm  | 81 scfm     | 20.7%        | 3.1 psi       |

Feed air: 100 psig @ 100°F; pressure dew point 100°F.

| Pressure Dew Point | Feed Flow  | Outlet Flow | Outlet Purge | Pressure Drop |
|--------------------|------------|-------------|--------------|---------------|
| 3°C                | 111 nL/sec | 95 nL/sec   | 14%          | 504 mbar      |
| -10°C              | 79 nL/sec  | 65 nL/sec   | 16.9%        | 345 mbar      |
| -20°C              | 62 nL/sec  | 51 nL/sec   | 18.7%        | 268 mbar      |
| -30°C              | 52 nL/sec  | 42 nL/sec   | 20.7%        | 224 mbar      |

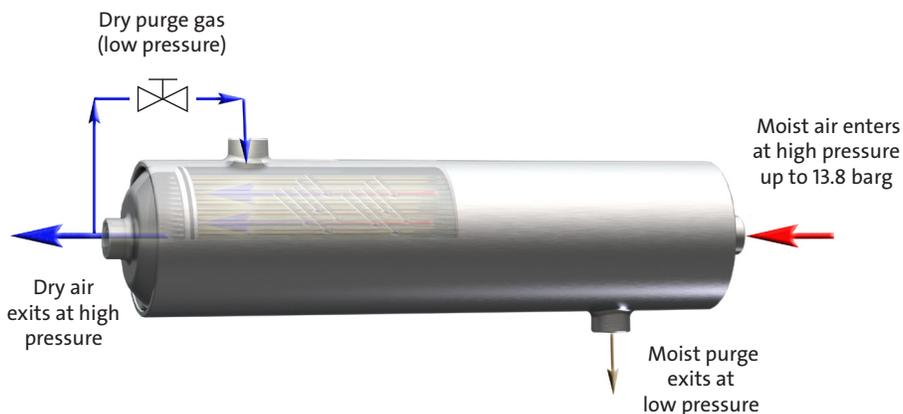
Feed air: 7 barg @ 35°C; pressure dew point 35°C.

## Ordering Information

| Catalog Number | Model Number    | Product Description                                 |
|----------------|-----------------|---|
| 436617         | PE6040-E1-8C-J4 | PRISM PE membrane dryer with 1 inch SAE connections |

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

### PE Membrane Dryer Flow



This diagram for illustration purposes only. Actual product design and port positions vary.

## Feed air requirements

PRISM membrane dryers are specifically designed to remove water vapor. Dryer performance will be reduced if liquid water or liquid compressor oil enters the membrane dryer.

Coalescing filters must be installed upstream of the membrane dryer in order to remove both bulk and aerosol liquid water and liquid compressor oil. Food and drug applications or special electronic uses require oil vapor removal by installing an activated carbon adsorption filter after the coalescing filters.

## Mechanical Design Limits

|                    |                      |
|--------------------|----------------------|
| Design pressure    | 27.6 barg (400 psig) |
| Design temperature | 82.2°C (180°F)       |

## Operating Limits

|                     |                      |
|---------------------|----------------------|
| Pressure maximum    | 13.8 barg (200 psig) |
| Temperature maximum | ≤54.4°C (130°F)      |

## Materials

|                 |                  |
|-----------------|------------------|
| Shell tube      | 6063-T6 Aluminum |
| Shell ends/caps | 6061-T6 Aluminum |
| Purge fitting   | Plated Steel     |

## Weight | Dimensions | Connections

|                          |                          |
|--------------------------|--------------------------|
| Length                   | 1287.4 mm (50.69 inches) |
| Diameter                 | 170.7 mm (6.72 inches)   |
| Height (w/purge fitting) | 223.9mm (8.81 inches)    |
| Weight                   | 13.6 kg (30 lbs)         |
| Catalog number           | 436617                   |
| Connection (in/out)      | 1" SAE                   |
| Connection purge inlet   | 3/8" SAE                 |

### WARNINGS:

Operation of the PRISM membrane dryer above the rated design pressure may be hazardous. Do not connect dryer to compressed air sources that can exceed the maximum rated pressure without installing appropriate pressure controls and safety relief devices in the compressed air supply line.

Compressed air can be dangerous. Know and follow all safety rules, especially when breaking into and blowing down compressed air lines when installing or modifying equipment.

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