

PRISM[®] Gas Generation Systems

Our experience and understanding of your application enable us to reliably deliver a cost-effective PRISM Gas Generation solution to meet your needs.



PRISM®

experience

THE ON-SITE LEADER

It all started on the strength of a simple, yet revolutionary proposal almost 70 years ago. Leonard Pool, the founder of Air Products, had the novel idea to produce and sell industrial gases “on-site.” Pool’s initiative, to build Air Products-owned and -operated gas generating facilities adjacent to users, proved sound and technically feasible. And the rest, as they say, is history.

Today, Air Products is a Fortune 500 company with annual revenues of \$10 billion. Our more than 22,000 employees around the globe provide the local customer response you deserve by drawing on the company’s global capabilities and world-class technologies.

understanding

PRISM GAS GENERATION SYSTEMS

As a global leader in gas generation and purification, Air Products offers PRISM gas generation systems based on proven, advanced technologies for the supply of oxygen, nitrogen, and hydrogen. We start by gaining a thorough understanding of your requirements by listening to your needs. Then, utilizing our extensive application and industry knowledge—gained from literally thousands of installations worldwide—we help you select the optimal gas supply solution.

We can do this because we offer the full range of gas supply modes, so our goal is not to sell a particular technology, but rather to let you choose the most reliable and economical supply solution available. Our state-of-the-art PRISM on-site gas generation systems range from packaged membrane systems to cryogenic installations. So, whether your facility needs 95%, 99.5% or 99.9995% purity; small or a very large flow rate; oxygen, nitrogen or hydrogen, we have the technology and expertise to deliver the most dependable, optimal and economical mode of gas supply.

And more. We are continuing to invest to maintain our leadership in offering the best technologies in the marketplace. Our extensive research and development efforts are focused on our PRISM products, helping you enhance your productivity as well as introducing new technologies that provide you with environmental and cost savings benefits. Our goal is to always provide you with the best technology available for your application.





| dependability |

A RECORD OF PERFORMANCE

When you turn to Air Products for your industrial gas generation needs, you choose a partner with decades of experience in gas separation technology. And while it is good to know we have the experience, it is our world-class onstream record that will give you peace of mind.

Dependable supply and service is a hallmark of our commitment to you. Our extensive merchant gas system offers product availability you can count on. We maintain an extensive inventory of parts and consumables for our entire line of gas generating equipment. Our local service representatives have the experience and qualifications to provide technical assistance, from commissioning that meets local code and design requirements to start-up and service calls—all because we are passionate about the dependability of your gas supply.

cost-effective

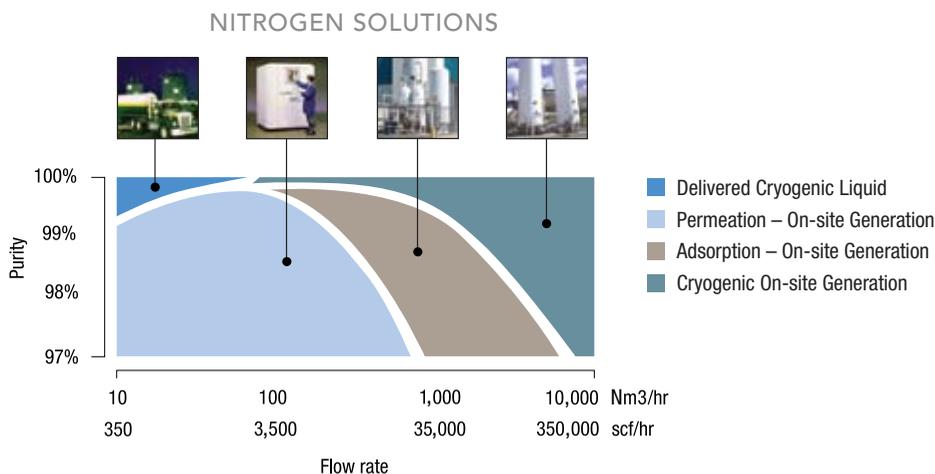
PROPRIETARY TECHNOLOGY

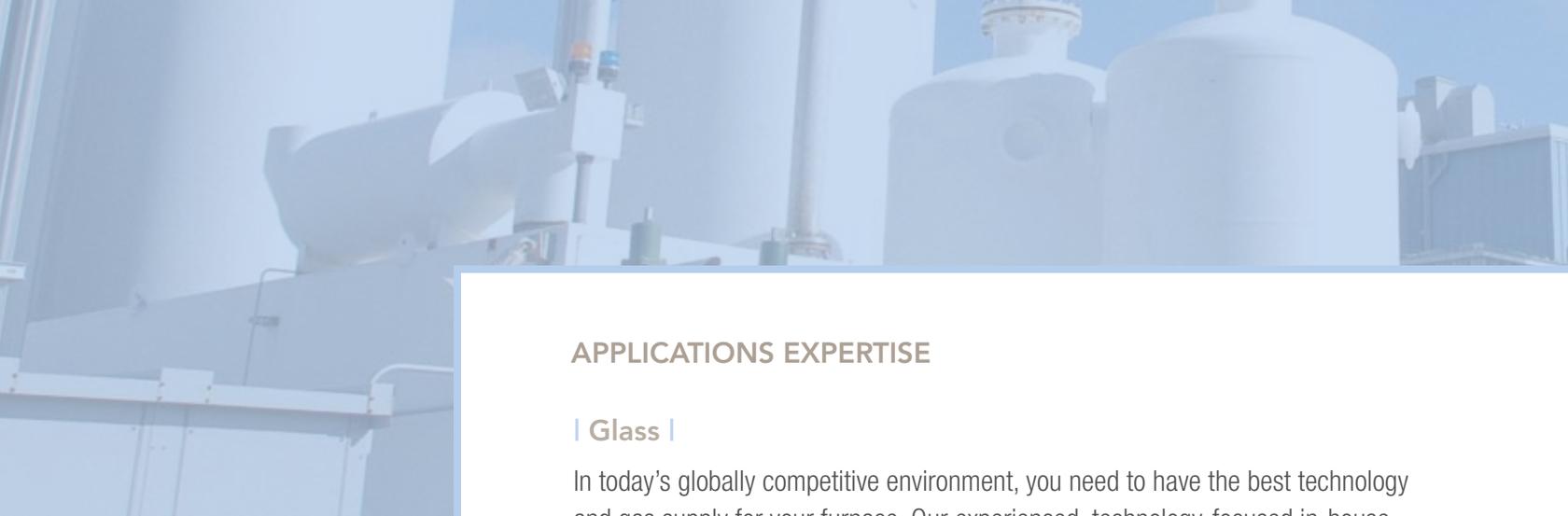
Whatever your gas purity requirements, Air Products' novel PRISM gas generation technology and expertise can help you achieve the cost-effective supply solution you need. We take the time to understand your purity, pressure and flow requirements and then put our expertise to work for you. And because we offer the full range of supply solutions, we can work with you to develop the best approach to economical on-site gas generation for many years of dependable service. PRISM gas generation systems utilize Air Products' proprietary cryogenic, adsorption, and membrane permeation technologies to provide the right purity, flow, and pressure required for your critical application. In many cases, we also supply backup and peak shaving supplemental liquid systems to cover variable demand for the best overall supply solution.

solutions

THE OPTIMAL SOLUTION

Air Products' technical experts will work closely with you to help you select an optimal supply solution for your application. Our team will work with you to perform a comprehensive analysis of your industrial gas requirements as well as an evaluation of your operating process. Using this information, combined with our extensive experience in on-site generating systems for many gas applications, we can review together cost-effective supply solutions for your unique operation.





APPLICATIONS EXPERTISE

| Glass |

In today's globally competitive environment, you need to have the best technology and gas supply for your furnace. Our experienced, technology-focused in-house glass team provides solutions based on innovations. PRISM gas generators are often the best long-term gas supply systems for glass furnaces.

| Water |

We offer a range of modular on-site gas supply solutions and applications expertise for both wastewater and drinking water applications.

| Pulp & Paper |

With increasing regulatory pressure and growing customer demand for better products, Air Products' PRISM systems can provide dependable oxygen supply for improving pulp and paper quality, meeting environmental guidelines, and reducing processing and operating costs.

| Nonferrous Metals |

PRISM systems can provide the dependable and economical oxygen and nitrogen needed in smelting, melting and refining.

| Steel |

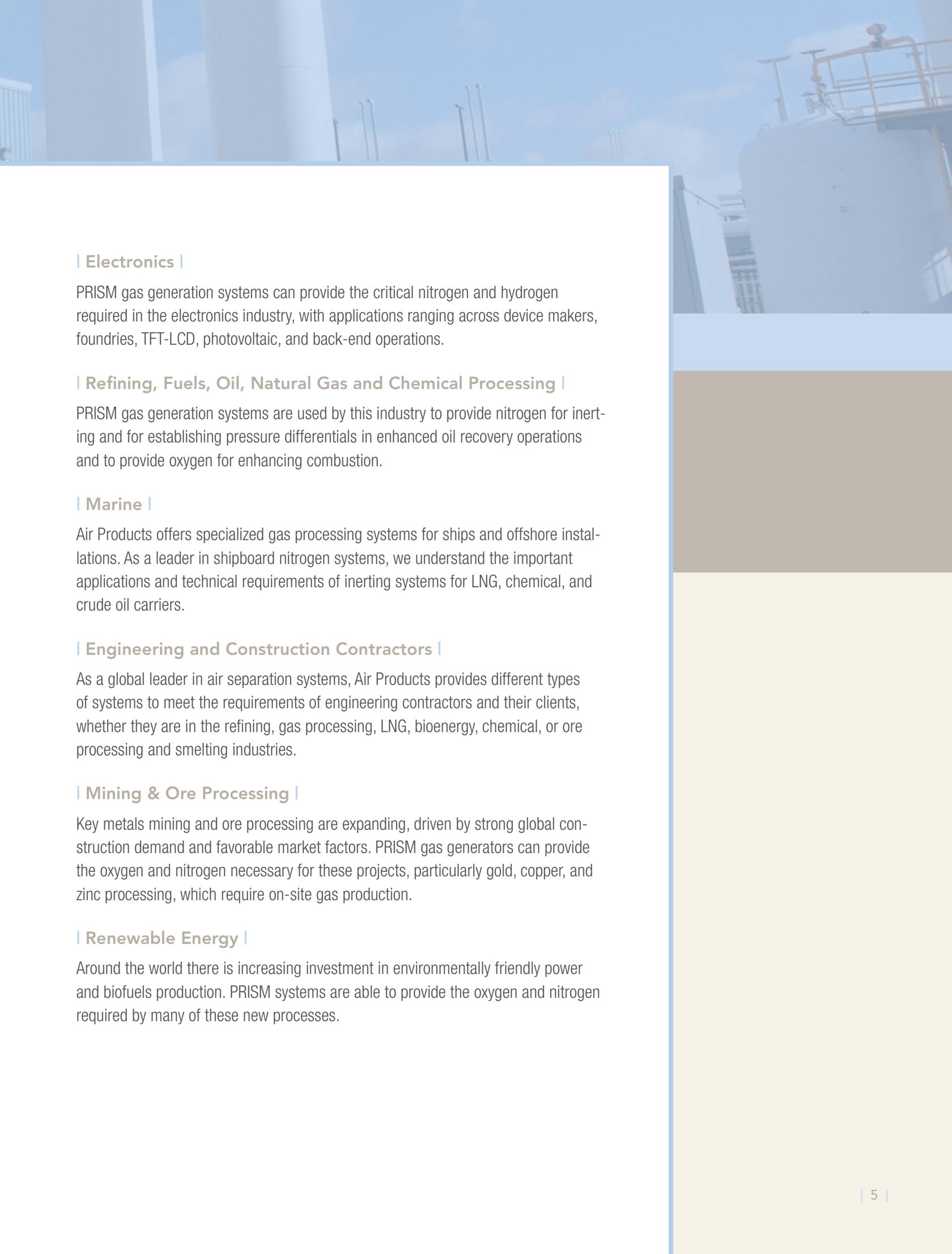
As electric arc furnace plants supply more of the global demand for steel, PRISM systems can deliver the critical demand for oxygen, nitrogen, and argon.

| Metals Processing |

With our comprehensive range of PRISM generators, we can offer the right on-site system for your requirements. Air Products' industry applications experts can recommend the optimal system for meeting the atmosphere needs of your operation, whether it is annealing, carburizing, brazing, sintering, vacuum processing, or quenching.

| Food |

Controlled atmosphere product storage and modified atmosphere packaging extend food life and enhance product quality. PRISM gas generation systems provide the low oxygen atmospheres needed for these applications.



| Electronics |

PRISM gas generation systems can provide the critical nitrogen and hydrogen required in the electronics industry, with applications ranging across device makers, foundries, TFT-LCD, photovoltaic, and back-end operations.

| Refining, Fuels, Oil, Natural Gas and Chemical Processing |

PRISM gas generation systems are used by this industry to provide nitrogen for inerting and for establishing pressure differentials in enhanced oil recovery operations and to provide oxygen for enhancing combustion.

| Marine |

Air Products offers specialized gas processing systems for ships and offshore installations. As a leader in shipboard nitrogen systems, we understand the important applications and technical requirements of inerting systems for LNG, chemical, and crude oil carriers.

| Engineering and Construction Contractors |

As a global leader in air separation systems, Air Products provides different types of systems to meet the requirements of engineering contractors and their clients, whether they are in the refining, gas processing, LNG, bioenergy, chemical, or ore processing and smelting industries.

| Mining & Ore Processing |

Key metals mining and ore processing are expanding, driven by strong global construction demand and favorable market factors. PRISM gas generators can provide the oxygen and nitrogen necessary for these projects, particularly gold, copper, and zinc processing, which require on-site gas production.

| Renewable Energy |

Around the world there is increasing investment in environmentally friendly power and biofuels production. PRISM systems are able to provide the oxygen and nitrogen required by many of these new processes.

NITROGEN SUPPLY SOLUTIONS

Whatever nitrogen purity or flow rate your process requires, Air Products has the right solution.

NITROGEN SUPPLY TECHNOLOGIES

| Cryogenic |

Air Products offers two main classes of cryogenic nitrogen plants. Some nitrogen plants utilize a small amount of cryogenic nitrogen to provide refrigeration to the air separation process, while other plants employ the cryogenic expansion process to achieve the cooling needed to separate air. In addition, some standard plant designs are able to make liquid nitrogen in addition to the primary gaseous product, which provides a backup for certain customer requirements. Cryogenic nitrogen plants are widely used in the electronics, oil refinery, LNG, and chemical industries as well as in other higher flow, high purity requirements.

| Permeation |

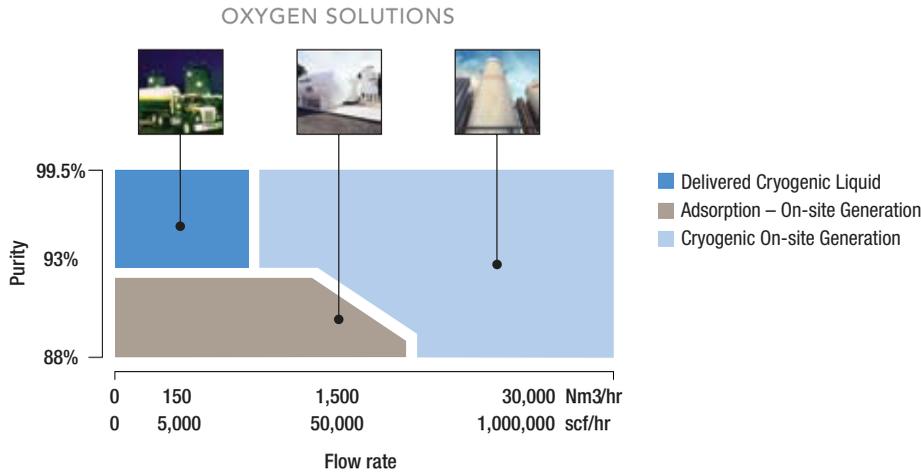
PRISM membranes provide on-site nitrogen generation through a range of standard and engineered systems. Air Products offers its industry-leading PRISM membranes in multiple sizes. These membranes can be used in various combinations to design on-site nitrogen generation systems, ranging from compact, lower flow units used in food packaging and storage to very large high-pressure systems used in the oil and gas industry. The Air Products A/S Marine Group is a global leader in the design of high-performance nitrogen systems used in critical transportation applications such as LNG and chemical tankers. These nitrogen systems can help maintain chemical product quality during ocean shipment.

Our membrane OEM partners start with the PRISM membrane and then design, manufacture, and sell specialized nitrogen, air and gas dehydration, and hydrocarbon separation systems. By working together, a wide range of specialized industries are able to realize the benefits of gas separation systems based on PRISM membranes.

| Adsorption |

For many years, PRISM pressure swing adsorption (PSA) nitrogen units have delivered dependable performance for customers across numerous industries. Our proprietary high-purity PSA process can deliver very pure nitrogen using significantly less feed air than typical systems. This ability provides an economical on-site system for our customers in many industries ranging from metals processing to chemicals.





OXYGEN SUPPLY SOLUTIONS

Air Products has a full range of proprietary oxygen generating systems to meet your needs.

OXYGEN SUPPLY TECHNOLOGIES

| Cryogenic |

Based on the fractional distillation of air, these plants are able to produce high-purity gaseous oxygen as well as nitrogen and argon for some requirements. Utilized often in the glass and steel industries, these plants can be designed with required backup systems, product storage, and gas delivery pressures to meet demanding applications. While these cryogenic plants are among the largest PRISM generation systems offered by Air Products, our standardized designs and modular configurations help us to provide responsive delivery to meet critical project requirements.

| Adsorption |

As a leader in molecular sieve separation and purification of gases, Air Products offers a comprehensive range of vacuum swing adsorption systems delivering oxygen gas at the pressure required by the application. All of these PRISM oxygen systems utilize a modular design approach which reduces installation time at your facility. Ranging from small requirements in water treatment up to large systems for steel and nonferrous applications, our systems utilize the latest process development for long-term economy and reliability.



HYDROGEN SUPPLY SOLUTIONS

As a world leader in hydrogen supply and on-site hydrogen generation, Air Products is ready to put our expertise to work for you. Our compact PRISM hydrogen systems are able to meet the requirements of many users requiring less than 500 Nm³/hr. Combining our best proprietary systems and controls with robust, long-life reforming systems, PRISM hydrogen generators offer supply alternatives for users in both developed and newly industrializing regions of the world with applications ranging from metals processing to glass and electronics.



| worldwide |

GLOBAL EXPERTISE DELIVERED LOCALLY

With local expertise around the world, Air Products is focused on delivering reliable, cost-effective gas supply solutions based on understanding your needs. Contact your local representative to see how we can help you.

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