

Industrial Gas Solutions for the Aerospace Industry



Air Products supplied hydrogen to the American space program from 1957 to the final shuttle launch in 2011. Today, we continue to supply hydrogen for NASA's testing facilities.

Air Products has been serving the aerospace industry since the 1950s when we began supplying hydrogen to a budding American space program. Today our special capabilities for aerospace manufacturers and their suppliers have expanded much further. We continue to develop products, services and technologies to meet the industry's ever-changing needs.

Total solutions

But we don't stop there. Our business relationships are based on a collaborative approach that starts with a thorough understanding of your business and your needs. We focus on finding ways to help improve your operation and lower your overall costs. For example, our account managers, engineers and technicians have worked with customers to lower their cost of use for gases and have uncovered ways to improve processes that rely on industrial gases. Our goal is to help you in as many ways as we can with your gas applications—so you can concentrate on your core business.

Specific capabilities

Based on serving customers worldwide, Air Products has developed an array of global capabilities specific to the aerospace industry:

Full range of gases

- World's largest supplier of delivered and on-site hydrogen
- World's largest producer and supplier of liquid and gaseous helium
- A global leading manufacturer of nitrogen, oxygen, and argon
- Global supplier of other essential gases, such as xenon and neon



“Our innovative approach to managing gas supply systems has helped many customers reduce their cost of gas ownership and improve their overall processes.”

Greg DeMatto
 Director – Aerospace and Defense
 Air Products

Supply considerations or advantages

- Own and operate hundreds of gas plants worldwide – all tied into sophisticated distribution networks that can efficiently serve the needs of our aerospace and other customers
- Maintain an excellent record of meeting on-time needs and volume requirements for gases, from tanker delivery and on-site plants to pipeline supply
- Manage logistics of propellant supply systems
- Can easily provide large gas requirements – owning and operating on-site industrial gas plants or designing and installing liquid bulk supply systems, including turnkey aspects

Comprehensive range of state-of-the-art equipment

- Cryogenic pump systems for high pressure gas supply, including Air Products’ proprietary technology for hydrogen and helium requirements
- Custom solutions for advanced gas supply systems such as for high flow requirements
- Design, engineering, and installation of rigid or flexible vacuum jacketed cryogenic piping
- State-of-the-art cryogenic liquid flow metering

Applications support

Our applications engineers bring vast knowledge and experience in applying gases to the aerospace industry. We can help you in the following areas:

- Launch services
- Aerospace manufacturing and development, including autoclave composite curing and environmental chambers
- Traditional metals processing applications for component parts for tier suppliers, such as hardening, HIPing, annealing, brazing, sintering, thermal spray, etc.
- Thermal spray cooling with cryogenic nitrogen vapor to improve productivity while achieving high-quality coatings

Comprehensive reviews and audits

- Process audits to help optimize the use of industrial gases in your operation and potentially uncover areas for improvement
- Comprehensive environmental compliance audits
- Site and safety evaluations for industrial gas systems
- Preventive and emergency maintenance services and programs for customer-owned gas supply equipment

Total safety support

At Air Products, safety is very important. We design and operate our facilities to the highest safety standards. We design our systems at customer’s facility with safety in mind. Here are some of our safety-related accomplishments:

- Among the leaders in safety-related awards in our industry
- A top performer of the American Chemistry Council (ACC), year after year
- The first industrial gas company in the United States to have successfully completed a third-party Management Systems Verification of its environment, health and safety processes
- Consistently exceed the average for lost-time injury frequency rates for large companies



Table 1: Aerospace applications for industrial gases

| Argon | Helium | Hydrogen | Nitrogen | Oxygen |
|------------------|-------------------------|-------------------|-----------------------|---------------------|
| Welding | Quenching | Rocket propellant | Heat treating | Cutting and welding |
| Heat treating | Lifting | Heat treating | Material testing | Rocket propellant |
| Pressure testing | Superconductors | Thermal spray | Purging | Thermal spray |
| Inerting | Leak detection | | Composites curing | |
| Thermal spray | Low temperature testing | | Acoustical testing | |
| | Purging | | Environmental testing | |
| | Welding | | Machining | |
| | Thermal spray | | Laser cutting | |
| | | | Thermal spray | |

tell me more

For more information

We can help you achieve more cost-effective operations, improve safety and environmental compliance, and give you added flexibility to compete in the global marketplace. To learn more about our global capabilities for aerospace manufacturers and their suppliers, or to tell us more about your needs, contact us at the office nearest you.



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