

Expanding hydrogen infrastructure. Extending range.

At the University of California, Irvine, Hydrogen Fueling Station, Air Products continues to evolve hydrogen infrastructure technology to meet real-world demands.



Fueling Station Specifications

Dispensed product

- Pure gaseous hydrogen

Delivery pressures

- 350 bar (5,000 psig)
- 700 bar (10,000 psig)

Flow

- 25 kg/day capacity
- 5–10 cars/day
- Average fill 3–6 minutes

Supply mode

- Trucked-in liquid hydrogen

Storage capacity

- 1,500 gallons (liquid)
- 22,000 cubic feet (gas)

When today's drivers pull up to the gas pump, they choose an octane rating. Someday, drivers may instead select the pressure at which they will refuel their hydrogen fuel cell vehicles. Fuel cell vehicles can achieve a greater range by using hydrogen at higher pressures. Air Products has installed a dual-pressure hydrogen refueling station at the University of California, Irvine, to advance 700 bar hydrogen fueling technology, to support hydrogen fuel cell vehicles in the region, and to learn more about the hydrogen infrastructure under real-world conditions.

The installation is the first 700 bar station operating in the United States at a location with wider accessibility for vehicle fueling. Air Products has installed prior 700 bar stations for private use at OEM facilities.

A team dedicated to hydrogen transportation

Air Products designed, engineered and installed the station with funding from the U.S. Department of Energy and California's South Coast Air Quality Management District. The station is the first deployed by Air Products as part of the California Hydrogen Infrastructure Project with the Department of Energy. Through funding and fuel cell development, automakers, including Toyota, Honda, BMW and Nissan, also support the project. The National Fuel Cell Research Center at UC Irvine operates the station, which is open to authorized users. The station is maintained by Air Products.

Dual-pressure dispenser technology

The Series 200 dispenser delivers pure hydrogen at 350 bar (5,000 psig) and at 700 bar (10,000 psig) through noninterchangeable nozzles, which reduce the potential for user error. The stand-alone dispenser features a familiar, gas station-like interface designed for ease of use and safety.

Fill times are approximately three to six minutes for both fueling pressures. The fueling station has a capacity of 25 kg per day—about five to ten fills, depending on vehicle capacity. Vehicle communications help optimize the fill by allowing the station to monitor tank temperature and pressure during the fueling process. Hydrogen can be dispensed with or without vehicle communications.

Building a critical knowledge base

With the UC Irvine fueling station, Air Products brought together government and corporate partners to advance hydrogen fueling and station operation monitoring technologies. Air Products conducts remote monitoring to gather and analyze data. Along with providing additional support for the growing number of fuel cell vehicles in southern California, the station provides opportunities to learn more about fueling system efficiencies, hydrogen demand, fill times, supply/storage logistics, operator experiences and fill patterns.

Dispenser features and benefits

Dual nozzles—This robust Air Products Series 200 dispenser is upgraded to offer both 350 bar and 700 bar dispensing capability to demonstrate fuel cell vehicles with extended range and, ultimately, to encourage drivers to use hydrogen vehicles in the region just as they currently use gasoline-powered vehicles.

350 bar nozzle—Unique fueling nozzle does not require use of personal protective equipment while fueling or separate grounding connection for the vehicle. Operates in both vehicle communications and noncommunication modes.

700 bar nozzle—For safety, noninterchangeable nozzle cannot be inserted in 350 bar fuel cell vehicle. Operates in both vehicle communications and noncommunication modes.

User interface—An electronic screen provides step-by-step fueling instructions, similar to retail gasoline dispensers.

Station design—Modular, stand-alone, skid-mounted supply and storage units with an integrated control system make it easy to change supply mode, upgrade capacity or increase pressures for greatest flexibility.

Take advantage of Air Products' 50+ years of hydrogen experience

Air Products is on the forefront of hydrogen energy technology development. As the world's largest supplier of merchant hydrogen, we are leading the way toward developing the hydrogen infrastructure necessary to fuel HCNG (hydrogen/compressed natural gas) and hydrogen fuel cell vehicles. Since 1996, we have installed over 65 hydrogen fueling stations in 12 countries.

We understand the wide range of issues involved in the transition to hydrogen energy—technical, operational, economic. With decades of experience in hydrogen applications and an unsurpassed safety record, we offer a wide range of safety/training, engineering, business analysis and project management services as your supplier in this endeavor.

We can tell you more

When you are ready to look at lowering emissions through hydrogen technology, contact Air Products to learn more about our fueling stations, hydrogen supply, safety support and other hydrogen energy capabilities.



Touch screens provide easy fueling directions for users.

For More Information

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