Hydrogen fueling stations for transportation fleets

We understand that you want simplicity, safety, and reliability in fueling your hydrogen vehicles. Whether you are involved in a private or public demonstration program, we welcome the opportunity to work with you.

Air Products’ Series 100, 100R, and 200 fueling stations are produced to meet your early fleet fueling requirements with the flexibility of on-site generation or a delivered hydrogen supply. Our stations are provided as a complete package for easy installation and relocation. Series 100 and 200 are especially advantageous for meeting the on-site demands of your early testing or demonstration program through their reliable, cost-effective, and automated features. Series 100R provides extended driving range through fueling infrastructure at low capital investment.

Why should you consider buying or leasing Air Products’ fueling stations?

- Totally integrated vehicle fueling systems
- Operate with delivered hydrogen or hydrogen you generate on-site
- Low installation cost
- Require minimal utilities
- Energy-efficient, using pressure from the hydrogen supply
- Fast-fill and latest dispensing technology
- Dispensing technology complies with California Fuel Cell Partnership and SAE draft interface standards
- Aesthetic, high-tech appearance

<table>
<thead>
<tr>
<th>Series 100</th>
<th>Series 100R</th>
<th>Series 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleets of 1–2 cars</td>
<td>Used for infrequent car or 2 buses</td>
<td>Fleets of up to 20 cars</td>
</tr>
<tr>
<td>fueling away from the home fueling station</td>
<td>Hydrogen is delivered delivered or produced on-site</td>
<td>Hydrogen can be</td>
</tr>
<tr>
<td>Hydrogen can be delivered or produced on-site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Here’s how they work

The hydrogen fueling experience is similar to the gasoline filling process. The driver simply connects the hydrogen fuel dispenser nozzle to the vehicle and follows the few easy instructions shown on the dispenser screen to complete the fast-fill.

Series 100 and 200 hydrogen fueling stations contain a compressor that maintains the high-pressure hydrogen level in three banks of tubes. If the hydrogen supply source is at a high pressure, for example, a tube trailer, then the vehicle is first filled directly from the source. No compression is required since the source, rather than the station, is filling the vehicle. This flexibility reduces power costs and increases your available fueling capacity.

Series 100R follows this same high-pressure filling concept by using delivered hydrogen that is transferred to the fueling station storage. When the inventory drops below a minimum level detected through telemetry, the storage inventory will be boosted with another fuel delivery.

Other station configurations

If these fueling stations do not meet your needs, we have a mobile hydrogen fueler that requires no utility connections. Air Products can also provide you with customized fueling stations that can support retail, existing fleet fueling facilities, natural gas and hydrogen blend stations, or more specific needs.

Air Products’ experience in hydrogen applications

Air Products is the world’s leading producer and supplier of hydrogen. Our experience in hydrogen applications spans a period of 50 years and predates its use as a fuel for space programs. We, like you, are champions of hydrogen fuel cell technology. We not only supply hydrogen and equipment but also are directly and indirectly involved in fuel cell technology, including the leading-edge California Fuel Cell Partnership.

Naturally, hydrogen fueling stations are at the heart of our equipment portfolio. The best thing about them is their ease of operation and durability, which allows you to concentrate on your core business. You only need to fuel your fleet when you lease or purchase from us. Count on us to keep our fueling stations filled, serviced, and online. Air Products can also assume responsibility for all permits, installation, and training.

A word about safety

At Air Products, safety is our number one priority at all of our facilities in 30 countries, as well as at those facilities we install and operate for our many customers. Safety is integral to all of our work with hydrogen fuel cells. When used with adequate safety controls, hydrogen is as safe as traditional fuels (diesel and gasoline).

Our fueling stations have undergone rigorous testing and safety reviews. They meet or exceed all applicable national codes and standards.

Among our hydrogen fueling station safety features are automotive shutdown with leak detection, standard operator grounding, fueling by personal identification number (PIN) to permit access only by qualified users, and complete HAZOP analysis.

Additional fueling station options

In addition to choices in hydrogen supply, we offer a number of other important options:

- Air source for utility needs (Series 100 station)
- Additional storage to achieve a higher number of consecutive fills
- Compressor options
- Remote dispenser
- Hydrogen meter
- Vehicle communication
- Telemetry system for remote monitoring
- 700-bar dispensing
- Safety and operator training
### Equipment Features

<table>
<thead>
<tr>
<th>Design Parameters</th>
<th>Series 100</th>
<th>Series 100R</th>
<th>Series 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispenser</td>
<td>Integrated</td>
<td>Integrated</td>
<td>Separate</td>
</tr>
<tr>
<td>Dispensing pressure</td>
<td>350 bar</td>
<td>350 bar</td>
<td>350 bar</td>
</tr>
<tr>
<td>Fueling capacity</td>
<td>2kg/day (Note 1)</td>
<td>(Note 2)</td>
<td>20kg/day (Note 3)</td>
</tr>
<tr>
<td>Fuel storage quantity</td>
<td>6kg</td>
<td>16kg</td>
<td>12kg</td>
</tr>
<tr>
<td>Dimensions (length x width x height)</td>
<td>2.7m x 1m x 1.9m (9ft x 3.5ft x 6.2ft)</td>
<td>2.7m x 1m x 1.9m (9ft x 3.5ft x 6.2ft)</td>
<td>2.7m x 2.1m x 1.9m (9ft x 7ft x 6.2ft)</td>
</tr>
<tr>
<td>Weight</td>
<td>1800kg (4000 lbs)</td>
<td>4100kg (9000 lbs)</td>
<td>3600kg (8000 lbs)</td>
</tr>
<tr>
<td>Compression</td>
<td>Integrated</td>
<td>Not required</td>
<td>Integrated</td>
</tr>
<tr>
<td>Note 1: Up to 20kg/day is possible if a high-pressure hydrogen source is used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note 2: Hydrogen supply is integrated in the fueling station and is replenished by delivery. Actual fueling capacity is dependent on customer usage.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note 3: Up to 50kg/day is possible if a high-pressure hydrogen source is used.</td>
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</tbody>
</table>

### Site Requirements

<table>
<thead>
<tr>
<th>Item</th>
<th>Series 100</th>
<th>Series 100R</th>
<th>Series 200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen supply, minimum pressure</td>
<td>14 bar</td>
<td>N/A</td>
<td>4 bar</td>
</tr>
<tr>
<td>Air purge</td>
<td>None required</td>
<td>None required</td>
<td>None required</td>
</tr>
<tr>
<td>Air compressor drive</td>
<td>50 scfm, 100 psig minimum</td>
<td>None required</td>
<td>None required</td>
</tr>
<tr>
<td>Power</td>
<td>120 VAC, 2.5 amp (N/A) 240 VAC (EU)</td>
<td>Standard wall outlet</td>
<td>480 VAC, 40 amp (N/A) 400-440 VAC (EU)</td>
</tr>
<tr>
<td>Foundation</td>
<td>Bare level surface, concrete preferred</td>
<td>Bare level surface, concrete preferred</td>
<td>Concrete</td>
</tr>
</tbody>
</table>
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