

Hydrogen charging stations

Guided by clean transportation



How does a hydrogen station work?

1 Source of hydrogen

Low pressure hydrogen (H_2) is stored in bottles ("cylinder racks"), tanks or tube trailers.

2 Compression phase

Hydrogen is compressed at 35 and/or 70MPa.

3 Buffers

Once the pressure has been increased, hydrogen is stored in bottles known as buffers.

4 Exchanger

Before it is distributed, hydrogen is cooled using the exchanger and the refrigeration unit.

5 Dispenser

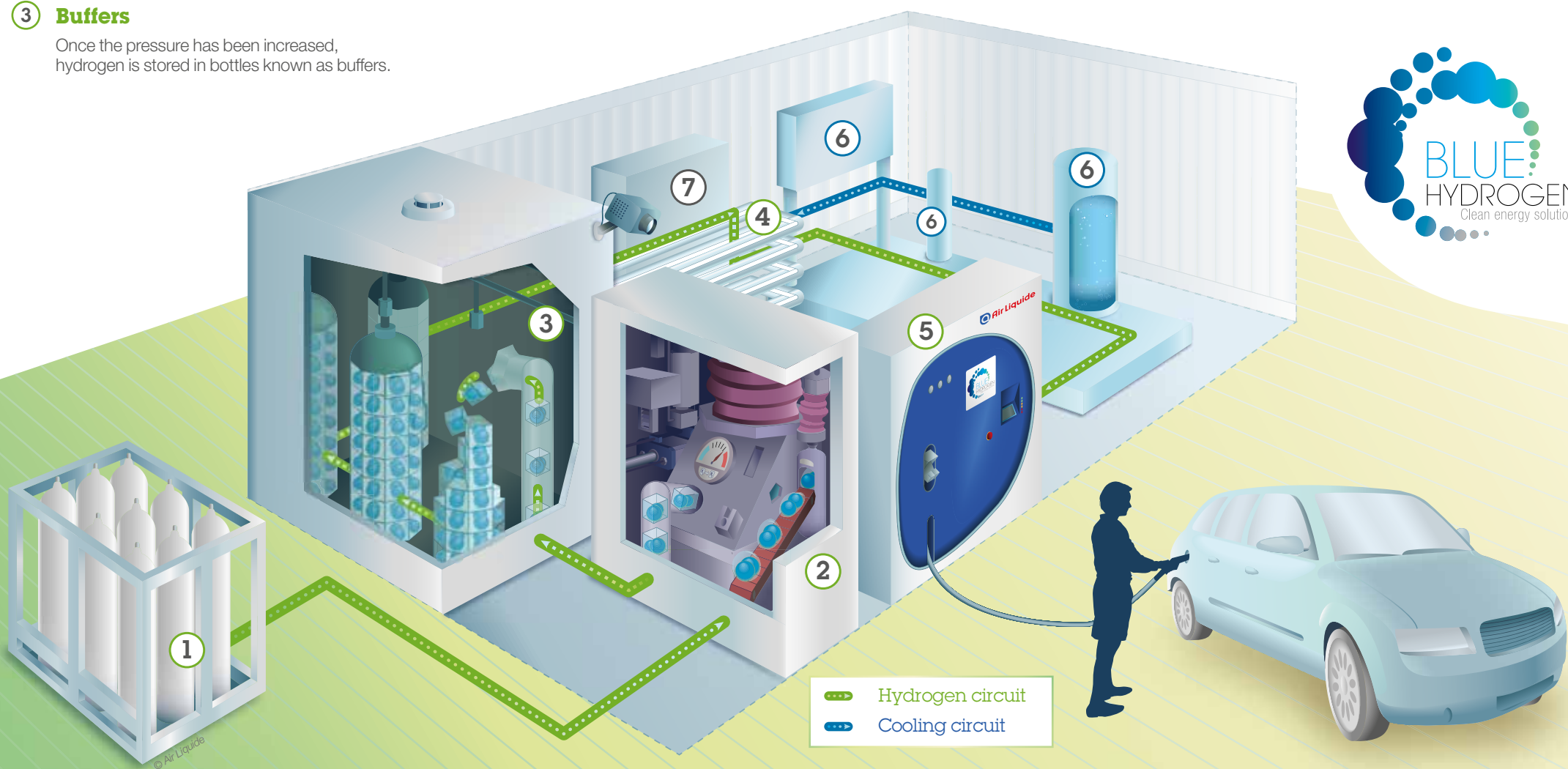
It enables the distribution of hydrogen to the vehicle's tank, charging it in less than 5 minutes.

6 Refrigeration unit (for 70MPa charging stations only)

It supplies cooling fluid to the exchanger, and is made up of a buffer tank that stores and regulates the flow of the liquid, of pumps and an electrical control cabinet.

7 General control cabinet

The station's electrical control cabinet.





Energy to go further

The world now faces a dual challenge that involves both the environment and energy.

Accordingly, **providing access to clean transportation** is a major challenge in the effort to reduce greenhouse gases and local pollution in cities (particles and noise).

Used in the fuel cell, hydrogen combines with oxygen from the air to produce electricity, with **water as the only by-product**.

Hydrogen can be produced from a range of energy sources, in particular from **renewable energies**. For this reason, hydrogen shows great potential to provide clean energy and be an alternative to fossil fuels.

Air Liquide is present across the hydrogen energy chain: **production, storage, distribution and uses for the end user**.

A world leader in gases, technologies and services for Industry and Health, Air Liquide seeks to facilitate access to this **clean energy**.



Air Liquide has made a commitment to produce at least 50% of the hydrogen necessary to energy applications through carbon-free processes by 2020, by combining:

- ✓ biogas reforming,
- ✓ the use of renewable energies during water electrolysis,
- ✓ the use of technologies for the capture and upgrading of carbon emitted during the process of producing hydrogen from natural gas.

Contacts

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 67,000 employees and serves more than 3 million customers and patients.