

Subcooled hydrogen refueling station

Liquid-to-liquid series | For heavy-duty vehicles



With more than 260 hydrogen stations delivered all over the world, Air Liquide provides **global hydrogen refueling solutions** from project definition to operation and maintenance support.

This versatile station, part of our modular product line, dispenses **liquid hydrogen or subcooled hydrogen** for fast and safe refueling. Its modular design allows for customization to fit any project.

Key benefits

- ✓ Optimized CAPEX and OPEX design
- ✓ Efficient subcooled liquid hydrogen pump ensures maximum yield from every liter of hydrogen fuel
- ✓ Modular design allows for future expansion
- ✓ Minimized boil-off gas leading to reduce fuel loss and greater profitability

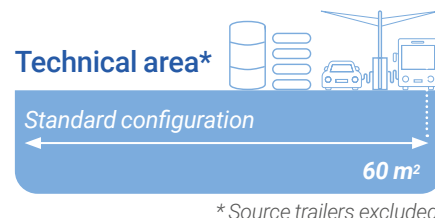


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Performances

	sLH ₂ refueling direct filling
H₂ Customer tank system	Cryogenic sLH ₂ tank system
Interface	Single line equipped with self closing quick coupling
Filling duration / flow rate	Direct filling: 15 min for 80 kg sLH ₂ tank system
LH ₂ station storage capacity	Horizontal or vertical LH ₂ tank
Functions	LH ₂ and sLH ₂ refueling; inerting; conditioning; cool down



Technical specifications

Boil-off gas (BOG) management	- Smart design minimizes H₂ loss during operation. - Refueling redefined: seamless experience with gas recovery for sLH₂ refueling.
Instrumentation	Advanced instrumentation ensures accurate monitoring of temperature, pressure and flow rate at both inlet and return lines
Utilities	400 V, 3 phases, 50 Hz, 50 kVA - Compressed air system included - Nitrogen possible for special operations
Safety	- Hydrogen / flame detection - Emergency stop buttons - Flare adapted to urban use
Environment	Ambient operating temperature: -20°C to +40°C 2014-68-UE (EU Pressure Equipment Directive) - ATEX Directive 2014/34/EU - ASME B-31.3 (pressure piping) - ISO 13984: liquid hydrogen land vehicle fueling protocol - CE marking - US regulation upon request
Codes and standard	

Modularity

Compatible hydrogen sources

- Standard cryogenic tank; liquid trailer
- Advanced delivery panel for LH₂ trailer offloading for supply chain optimization and BOG management

Flexible architecture

- Liquid subcooled hydrogen pump, Air Liquide proprietary design
- Multiple pump skid possibility for parallel refueling
- Possible to integrate a dispenser with a return line that allow regular LH₂ fueling
- LH₂ storage with safety vent line or independent vent line
- Vacuum cryogenic lines interfaces for efficient fuel transfer

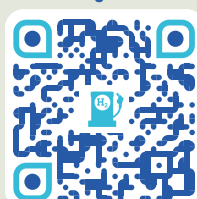
Dispensers

- Up to 3 dispensers per station
- Refuel multiple vehicles simultaneously with multiple pumps/dispensers
- Adaptable branding and colors

Services & maintenance support

- Preventive and corrective maintenance contract
- Technical assistance and training
- Spare parts supply
- Remote control for operation and assistance

Discover our complete range of hydrogen refueling stations:



Contact us

www-h2refuelingstations@airliquide.com

www.advancedtech.airliquide.com