



DFS *Worldwide* Brands



LIQAL Hydrogen Dispenser Reveal Uniti May 2022

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WE
ARE

OUR VALUES

A Collaborative
Entrepreneurial Spirit

Winning
Through Customers

Engaging
in High Ethical
Standards, Openness
and Trust

Fostering
Expectations for
Results

Respecting
and Valuing People



WE
ARE

OUR VISION

Enabling the
evolution of
consumer
experience in
fueling and
convenience retail.



WE
ARE

OUR MISSION

A leading global
provider of
advanced
customer-
focused
technologies,
services and
solutions in the fuel
and convenience
retail industries.



WE
ARE

OUR CULTURE

A team committed to
doing great things,
collaborating to
deliver exceptional
business results for
our customers. We
are accountable,
results driven and
create value, through
innovation,
continuous
improvement and
execution excellence.



WE
ARE

**CULTIVATING
EXCELLENCE**

Aligned

Accountable

Engaged

Problem Solvers

**Customer-
Centric**

**Celebratory in
Success**

**Execution
Champions**



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**About
Dover Fueling Solutions**

Dover Fueling Solutions (DFS), part of Dover Corporation, comprises the product brands of Wayne Fueling Systems, Tokheim, LIQAL, OPW Fuel Management Systems, ClearView, ProGauge and Fairbanks, delivers advanced fuel dispensing equipment, electronic systems and payment, automatic tank gauging and wetstock management solutions to customers worldwide. Headquartered in Austin, TX, DFS has a significant manufacturing and technology development presence around the world, including facilities in Brazil, China, India, Italy, Poland, Netherlands and the United Kingdom and the United States.

Advanced Fuel
Dispensing
Equipment



Electronic
Systems and
Payment



Fleet
Systems



Automatic Tank
Gauging



Wetstock
Management



ONE FAMILY. ONE MISSION.





LNG fuelling

24

LCNG stations
(4 in production)



Liquefaction

14

BOG liquefiers
(5 in production)



Hydrogen

1

H2 station
2 in production
1 in design

LIQAL Installed base



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LIQAL Expertise & Know-How

We offer consultancy and a broad range of solutions and services that can help make your vision of a station with sustainable fuels a reality

Turnkey stations

From initial design up to final commissioning

Integrator Package²³

Enabling integrators to use LIQAL state of the art technology in their portfolio. Including LIQAL's:

- proprietary technology
- engineering package
- commissioning services
- optional remote services

Stand-alone technology

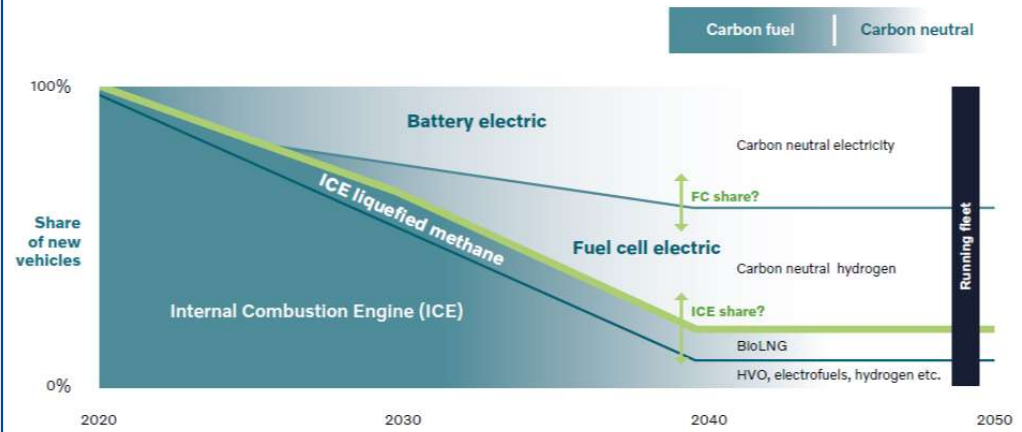
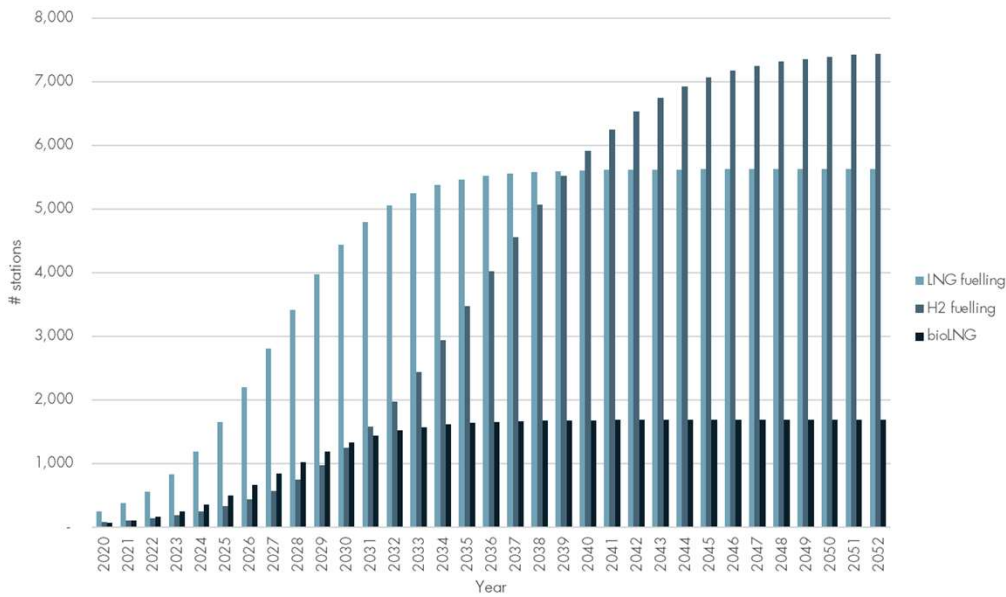
- dispensers LNG & H2
- boil off gas treatment LNG
- Cooling solutions H2
- Remote services LNG & H2

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Market adoption of alternative fuels



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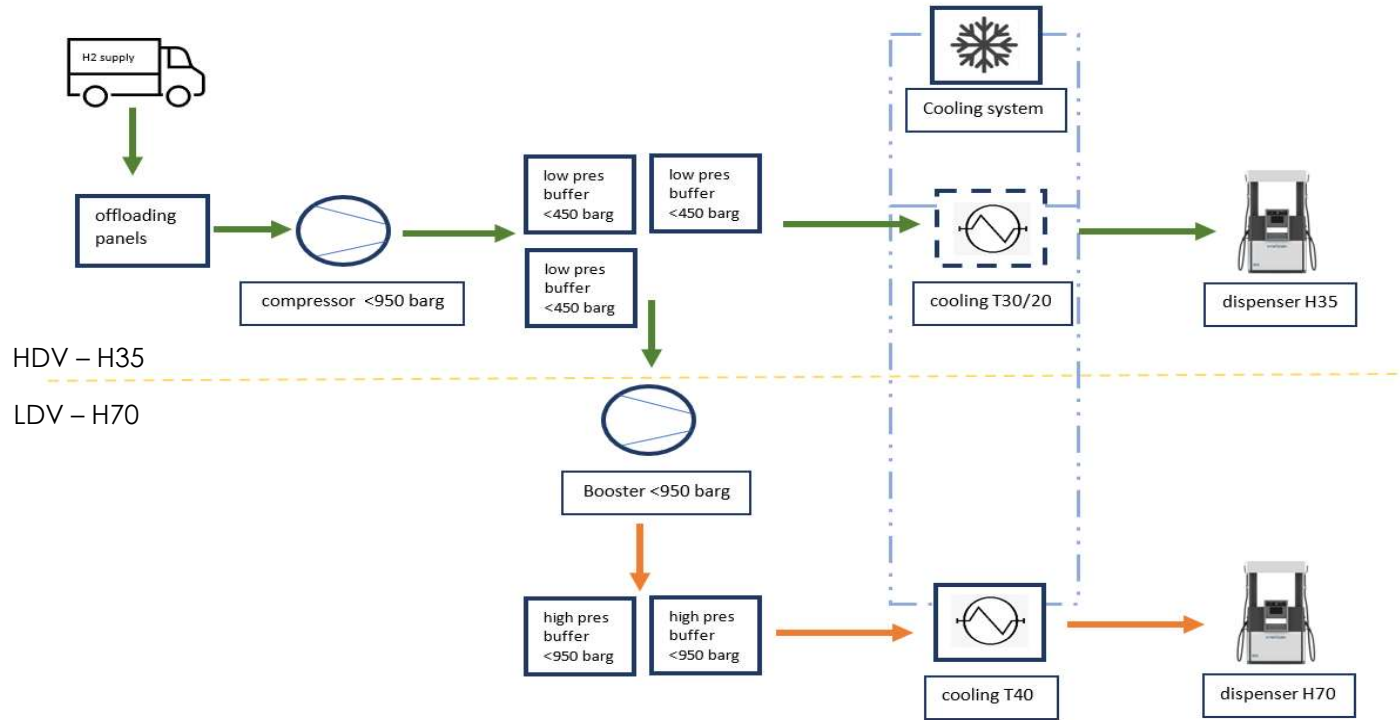
Hydrogen Refueling Technology

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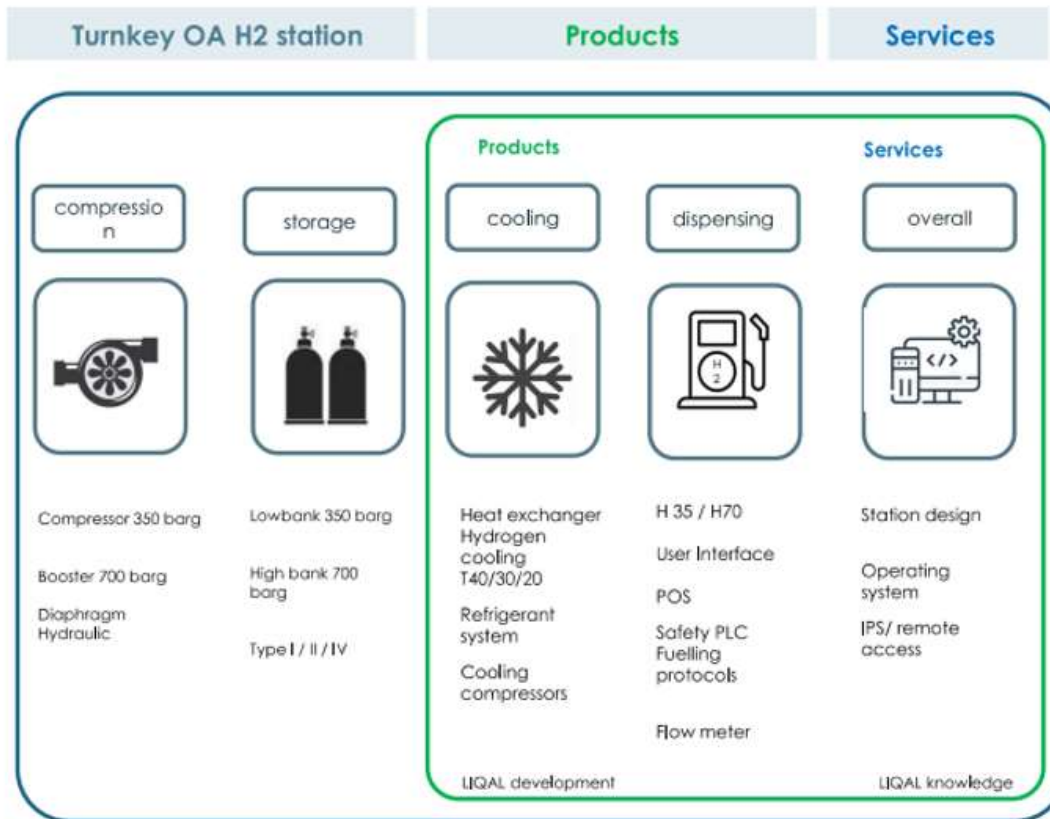




Components Hydrogen Refueling Station



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Designed with safety in mind from assembly to installation and daily operation, we offer key safety features to ensure intuitive and safe use by motorists

- Compliance with **all standards** to safely dispense H2
- **Safety PLC** with strong control logic for autonomous operation of the entire hydrogen refueling system
- **Welded connections** where possible to **prevent leakage**. Fitted with leak detections.
- Breakaway is fitted with triggers for optional remote notification
- Optional **safety sensors** available to detect **gas leakage, temperature fluctuation and collision**
- **Emergency stop button** available

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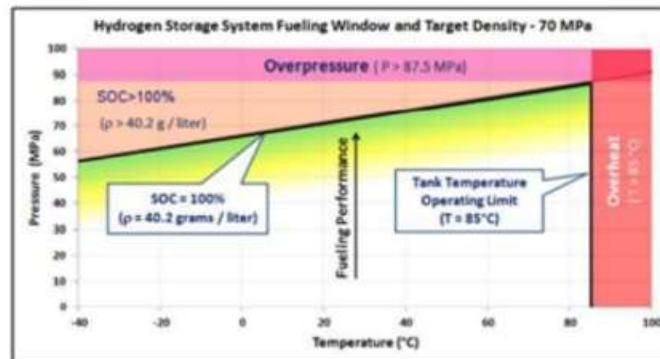


Cooling system

- compressor performance
- increased hydrogen inflow compressor
- hydrogen cooling for quick & continues dispensing

Main components:

- Refrigerant system
- Heat exchanger



Dispenser :

- hydrogen cooling
- H35 / H70 barg dispenser
- Flow rates
- Nozzles
- Fueling protocols
- User interface
- Safety systems;
 - break away system,
 - Gas, temperature and motion sensors



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Hydrogen Station Remote Performance Management

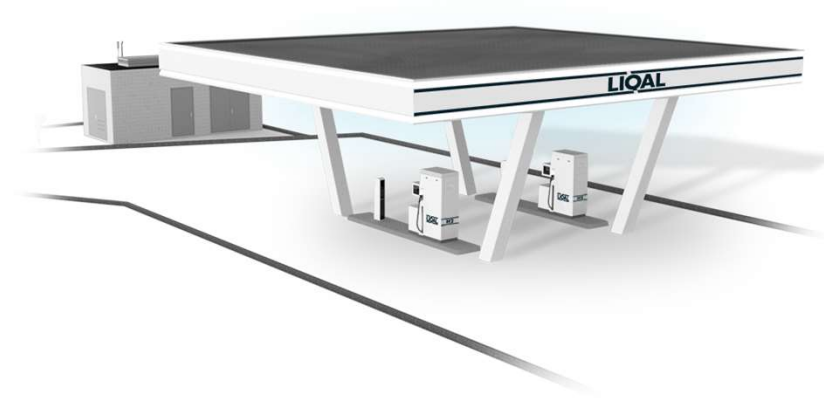
We offer an extensive suite for remote services, including remote performance management of your entire station to ensure superior availability to maximize throughput.

- Optional remote performance management by LIQAL's skilled engineers
- Helpdesk for Level-2 support available

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State-of-the-art technology and know-how from LIQAL & DFS provides the comfort of reliable performance by design

- Station designed and build to clients specification
 - Overall footprint configurable towards site dimension
 - Collaboration with current turnkey providers and compressor manufactures.
(work in progress)
- Combining H35 + H70 in one dispenser; smaller footprint
- Upgradable:
 - replacing/extend of older existing models
- Full DFS forecourt product & services portfolio integration
 - POS systems & loyalty systems



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Hydrogen Dispenser Total Cost of Ownership

Modern intelligent design that provides accurate metering and a long lifetime with fewer service interventions for a low total cost of ownership

- Accurate metering and reliable operation from durable quality
- Strong corrosion protection from quality materials and leading paint protection
- Built to last with field-proven components that require less service interventions in demanding daily use for overall low total cost of ownership
- Superior uptime in the field with reliable operation from field-proven components. We had 99% uptime in 2021 on our installed base!



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Hydrogen Dispenser

Model Details

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The intelligent design of the Hydrogen dispenser offers a reliable performance from field-proven components delivering low total cost of ownership

- **Compliance** with all **standards** to safely dispense hydrogen
- **Dual pressure** (H35 & H70) configurations in same dispenser. Simultaneously filling of two nozzles with island orientation as standard
- **Advanced calculator** for accurate metering. Interfaces to station PLC with strong control logic for autonomous operation of the entire hydrogen refueling system
- **CE & OIML** certified. Connection to fuel **retail POS** and our extensive eco-system for billing, loyalty and payment
- Intuitive user experience with optional **media display** for enhanced motorist engagement and safety messages
- **integrated** heat exchanger for up to 60 g/s (H70) fillings. Modular external hydrogen cooling system available
- Prepared for **IoT** connectivity for remote monitoring
- Optional **cooling** skid to prepare station for continues refueling.

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Model Availability

Hydrogen Dispenser

Orientation: Island (available dual-sided or single-sided)

Grades: Gaseous Hydrogen (remote pressure)

Nozzles: 1 (H35; H70) or 2 (H35/H35; H70/70; H70/H35)

Mass flow rate: 60 g/s

Operating pressure: H35: 5 - 450 barg / H70: 5 - 950 barg

Operating temperature: T40: -40 to -25°C / T20 -26 to -17,5 °C

Fueling Protocol: Supports SAE J2601 fueling protocols

Hose Management: Hanging Hose

Hose Reach: 3.0 meter

Options: extended range of options available

	Length	Width	Height
H2	1328	699	2268

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Hydrogen Dispenser

Design Specifications (H2)

Design pressure: H35: 500 / H70: 1050 barg

Design temperature: -50C / +70C

Ambient temperature: -20C to +35C (average +15C)

Humidity (RH): Max 85%

Earth-quake zone: Eurocode 8

Max wind load: 160 km/h

Design Codes

PED 2014/68/EU	Pressure Equipment Directive
ATEX 114 and 153	EX-standards EC94/9/EC
ASME VIII / AD2000	Design code for pressure vessels
ISO 19880-1:2020	Gaseous hydrogen fueling stations
OIML R139	Measurements and Instruments Directive and specific standard

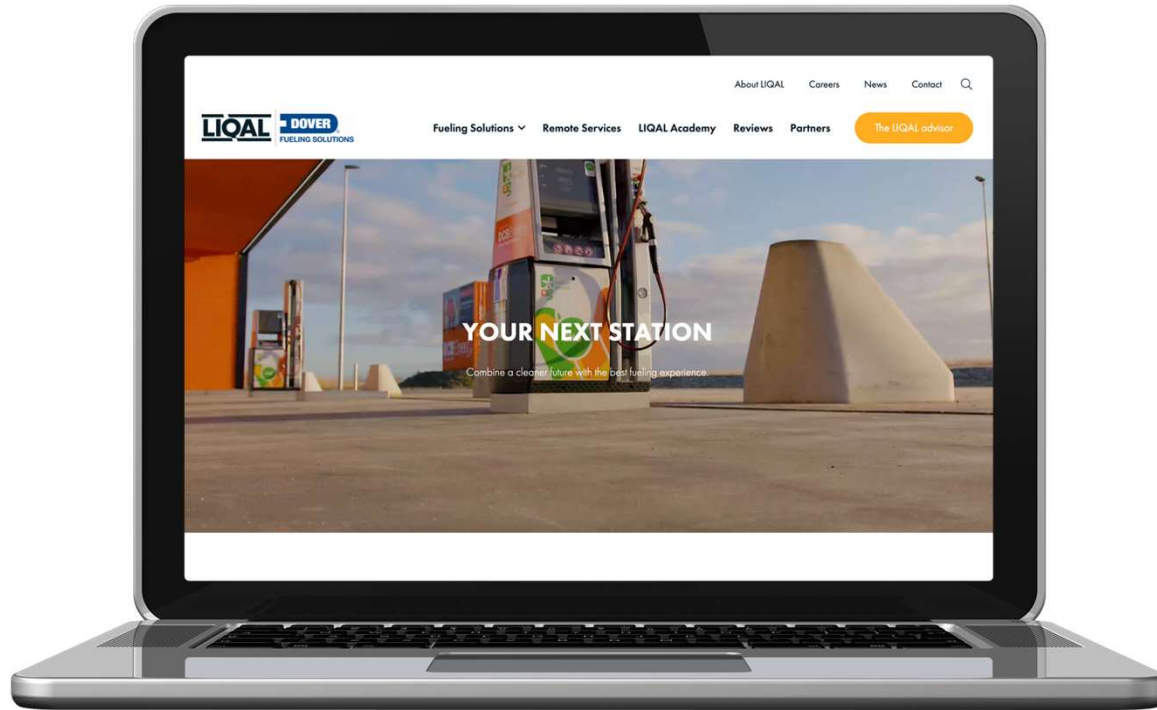
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YOUR NEXT STATION

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