Hydrogen Energy Solutions
Where Green is the new Blue

TOGETHER WE CAN BUILD
A CLEAN ENERGY FUTURE

www.ChartIndustries.com/Hydrogen
Engineered Bulk Storage for Liquid Hydrogen

Chart’s proven hydrogen experience and expertise gives you the assurance of meeting the most stringent code and measurement standards. Our engineered bulk storage solutions substantially reduce commissioning, compliance and safety risks. Chart designs, constructs and tests all of our equipment to meet your site-specific regulations as well as NFPA, ASME, PED and other local codes and regulations for each geography.

- Chart is the leader with 50+ years of experience in design, manufacture, test and assembly of liquid hydrogen storage equipment in our global facilities
- FCEV fuel stations, FC forklift fueling, liquefaction, aerospace and industrial applications
- More than 800 LH₂ bulk tanks built
- Complete line of liquid hydrogen storage tanks – Project references up to 172,000 US gallons (650 m³)
- Engineering expertise for unique applications

Integrated Solutions

- LH₂ fueling station development for FCEVs
- Liquefier product developments
- Integrated vaporization, compression and controls for trailer filling operations
- Modular designs for reduced installation costs
- On-board liquid fuel tanks for trucks, buses, etc.
- Mobile and containerized fuel stations and supply systems
- 25+ years of experience providing LNG stations

Brazed Aluminum Heat Exchangers (BAHX)

- Compact & efficient performance
- Custom engineered to meet customer’s thermal and hydraulic performance requirements
- Proprietary in-house high performance simulation software results in optimal configurations
- Products offered with all recognized applicable national design codes and Chart holds all major international quality accreditation
- High-end fin technology with lowest pressure drops for an energy-efficient liquefaction process
- Lowest leakage rates by cutting-edge brazing and welding technology means maximum safety and allows installation in vacuum coldboxes for liquefaction of hydrogen
Liquid Hydrogen Storage Tanks & Trailers

**Aerospace:** Progression on the aerospace case study design yields a necessity to marry design pressure, storage capacity, and total weight of the tank to create a shippable unit. In addition, large cryogenic lines are needed to support the high flows needed to transfer to the 2nd stage of the rocket. Chart undertook the design of a special pressure building unit for the LH₂ system to eliminate the need for a pump transfer of hydrogen.

- Designed cryogenic ground storage vessel built to maximum capacity, fully piped and plumbed
- Completed project in 12 months
- Tanks designed and manufactured at Chart’s facilities in the U.S., Europe and Asia
- Referenced customers include United Launch Alliance (ULA) and Satish Dhawan Space Centre

**Hydrogen Transports:** Chart’s liquid hydrogen trailers are designed specifically for transporting liquid hydrogen over the road and meet the requirements of local transportation codes and regulations.

- Lowest NER with longest holding times
- Tandem design for minimizing long haul distribution costs, while providing a size “in market” with the ability to maneuver at stations in urban settings
- Jumbo designs for long distances
- Manufacturing of hydrogen transport equipment in Theodore, AL and Goch, Germany
- Multiple transport options, each optimized for the local road regulations up to 17,600 US gallons (4.5 MT)

**Invest in Clean Energy**

**Liquid Hydrogen Storage Tanks & Trailers**

**Aerospace:** Progression on the aerospace case study design yields a necessity to marry design pressure, storage capacity, and total weight of the tank to create a shippable unit. In addition, large cryogenic lines are needed to support the high flows needed to transfer to the 2nd stage of the rocket. Chart undertook the design of a special pressure building unit for the LH₂ system to eliminate the need for a pump transfer of hydrogen.

- Designed cryogenic ground storage vessel built to maximum capacity, fully piped and plumbed
- Completed project in 12 months
- Tanks designed and manufactured at Chart’s facilities in the U.S., Europe and Asia
- Referenced customers include United Launch Alliance (ULA) and Satish Dhawan Space Centre

**Hydrogen Transports:** Chart’s liquid hydrogen trailers are designed specifically for transporting liquid hydrogen over the road and meet the requirements of local transportation codes and regulations.

- Lowest NER with longest holding times
- Tandem design for minimizing long haul distribution costs, while providing a size “in market” with the ability to maneuver at stations in urban settings
- Jumbo designs for long distances
- Manufacturing of hydrogen transport equipment in Theodore, AL and Goch, Germany
- Multiple transport options, each optimized for the local road regulations up to 17,600 US gallons (4.5 MT)

**Metering Systems for Hydrogen Gas Trailers**

Flowcom® Flow Metering Systems provide significant benefits for fleet managers and drivers. Our flow meter system for hydrogen gas covers an absolute pressure range from 435 to 3,045 psi (30 to 210 bar) and increases precision to reliably comply with your local standards and measurement requirements. Developed to run for more than 15 years, the system’s internal data memory can store the deliveries that can be transferred to your data systems by Bluetooth® wireless technology. The Flowcom flow metering system is simple, convenient and safe to operate.
Positioned to Address the Entire Hydrogen Value Chain

Engineered for Efficiency – Built to Last

Member of:

Strategic Partner

Chart Inc.
www.chartindustries.com
2200 Airport Industrial Dr.
Ball Ground, GA 30107
Phone  +1 800.400.4683
Worldwide   +1 952.243.8800
©2021 Chart Inc. P/N 21688343

Global:
Bob Oesterreich
Vice President, Global Hydrogen Sales
Mobile: +1 630.561.5792
bob.oesterreich@chartindustries.com

Americas:
Reid Larson
Director of Hydrogen Sales
Mobile: +1 952.687.7857
reid.larson@chartindustries.com

EMEA & India:
Peter Gerstl
Director of Hydrogen Sales
Mobile: +49.171.307.6540
peter.gerstl@chartindustries.com

Asia Pacific:
Mark McKechnie
Director of Hydrogen Sales
Mobile: +61.432.388.200
mark.mckechnie@chartindustries.com

Roy Bant
Hydrogen Sales & Key Account Manager
Mobile: +1 215.594.2582
roy.bant@chartindustries.com