

Chart City

Chart is a recognized global brand for the design and manufacture of highly engineered equipment used from the beginning to end in the liquid gas supply chain. Our products and know-how are critical components in the separation, delivery and end-use of liquid gases across a multitude of applications in industry and for energy. You probably don't know, but Chart technologies are integral to many of the processes and items we take for granted every day; all the way from carbonated beverages through to life-saving medical equipment and the space satellite program.



Engineered Systems
For Aerospace Applications

DESIGN | ENGINEERING | MANUFACTURING | PROJECT MANAGEMENT | INSTALL | COMMISSIONING | TRAINING | LIFECYCLE MAINTENANCE

3...2...1
Mission
Accomplished!



Scan the code and take a digital tour of Chart City.



Construction Codes

Stationary Storage: ASME Section VIII - Div 1
 Portable/Transportable Storage: DOT, TC, ADR, IMDG
 Pressure Piping: ASME B31.3, B31.12, B31.1
 NFPA: 2, 55, 59A
 CGA: 1.3, 4.1, G-5.5
 IEST-STD-1246E: Product Cleanliness Levels - Applications, requirements, and determination
 KSC-C-123: Specification for Surface Cleanliness of Ground Support Equipment Fluid Systems
 Air Force Space Command (AFSPC) Manual 91-710: Eastern & Western Range Safety Regulations

Certificates / Facility Registrations

ASME: U-8377
 National Board: R-1429
 ISO 9001:2015
 ISO 14001:2015
 OHSAS 18001:2007

Clients & Customers

National Aeronautics and Space Administration (NASA)
 Jet Propulsion Lab
 Space Exploration Technologies Corporation (SpaceX)
 Blue Origin, LLC
 United Launch Alliance (ULA)
 Lockheed Martin Corporation
 Oak Ridge National Lab
 Ball Aerospace & more



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Your Partner for Liquid Oxygen, Liquid Hydrogen and Liquefied Natural Gas Cryogenic Propellant Systems

- The use of liquid cryogenic LOX and LH₂ propellants for space launch has been around for many years. Recently, liquefied natural gas is replacing RP-1 and solid rocket propellants due to the abundant supply of natural gas in the US market and the cost per launch profile it provides.
- Chart has 55+ years of experience in design, manufacture, test and assembly of advanced cryogenic system equipment in our US-based and global facilities.
- Our team works closely with each of our customers to ensure that the system is designed properly, will function at its peak performance, and will reduce risk to the operator.
- Built for long-term integrity, our system components and product designs provide the highest level of performance at the lowest operating costs.

Launch Site & Support Equipment

- Liquid cryogenic propellant storage, LOX, LH₂, LNG
- Engine test run tanks
- Siphon vessel designs for pumping applications
- High purity cleaning to KSC-C-123J and IEST-STD-1246E standards – stringent particulate and non-volatile residue (NVR) levels
- Liquid conditioning systems including saturation, subcooling and boil off management through auxiliary liquid nitrogen recondensing systems for zero loss applications
- Large liquid withdrawal flow rates with designs to mitigate vortexing (gas ingestion into fluid stream)
- Fast vent systems to support aborted launch scenarios while maintaining safe vessel operating pressures
- Boil off free vent systems for liquid storage/stand by conditions
- Vacuum jacketed withdrawal lines and piping to minimize heat input to propellant during loadings/off loadings
- Advanced FEA analysis on blast loadings, cyclic loadings (pressure and temperature cycles), and acoustical effects
- Cryogenic shop function and proof testing with helium post tanking cold leak test capability
- Helium purge points for subcooled LOX applications
- Ambient pressure builders designed to support liquid withdrawal rates and interconnecting piping nozzle loadings
- Close tolerance customer connection points for ease of installation
- Made in the USA



Engineered for Efficiency— Built to Last

Cryogenic Systems Projects

Chart has successfully supplied cryogenic propellant storage tanks, vacuum insulated piping, pump, and control systems as turnkey packages to many governmental, research, and aerospace clients.



Propellant Storage



Vacuum Insulated Pipe



Cryogenic Umbilical Hoses



Ambient Vaporizers/Pressure Builders

