

Natural Gas Vehicle Fueling Stations



Safe & reliable
refueling
for natural gas
vehicles (NGV)





Total solution

Chart vehicle fueling stations are dedicated to safely and reliably delivering fuel for all natural gas vehicles (NGV) and fleets. LNG/LBG is typically used for heavy duty vehicles, including trucks, buses and special handling vehicles, and CNG for passenger cars and vans.

We offer a complete range of sizes, from private, relocatable stations through to ones with multiple dispensers open to both the public and fleet operators.

Single-Source Responsibility

By choosing Chart you also choose single-source responsibility. All components are engineered and manufactured by Chart Industries to function as an integrated system. No more finger pointing to the various suppliers of the key-components because Chart does it all.

Choose Chart for:

- Complete end to end solution from **initial design** to a comprehensive **aftersales** package
- Maximized station **availability and efficiency**
- Proprietary technology provides enhanced **environmental protection**
- Modular design and construction **facilitates simplified transportation and installation** with reduced civil engineering
- **24/7** technical service and support
- Fueling times **consistent** with equivalent diesel vehicles
- Vertical and horizontal **tank options**

By choosing Chart you gain a reliable and trustworthy ally, with a proven track record who will accompany you through the entire project lifecycle.

Chart is the leading technology supplier for NGV fueling and associated infrastructure.



Chart expertise

Chart LNG/LCNG stations are structurally similar to conventional diesel and gasoline stations and also deliver a liquid fuel. However, because LNG is stored and dispensed as a super-cooled liquid it requires Chart specialty cryogenic equipment, technology and expertise.

Gas and heat management

Safety, reliability, the environment and total cost of ownership are paramount. Chart designs incorporate a number of specialty features for boil off gas and heat management

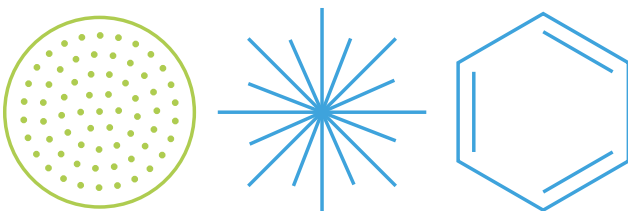
- Saturation on the Fly (SoF) vaporization
- Liquid nitrogen cooling
- External natural gas compressor

“All in one” solution

Stations offer fully automated operation, remote control access and are loaded with Chart's latest technology for maximum accuracy and operational comfort.

A combined solution, with LNG and CNG dispensing from a single LNG storage tank, facilitates maximum station utilisation, advanced boil-off gas management and business flexibility.

Chart stations are compatible with LNG vehicles supplied by all major OEMs and fuel both spark ignited and dual-fuel compression engines.





Compact 3-in-1

Compact 3-in-1 introduces one assembly storage concept with a series of new features that further improve efficiency while simultaneously reducing operating and installation costs.

Main benefits

- Saturation on the Fly technology delivers an immediate fueling response, which means **reduced filling times** for drivers who don't have to wait through a cool down process
- Chart proprietary Vacuum Insulated Pipework and minimized interconnecting **pipings** improve heat management and **eliminate** the need for additional nitrogen cooling
- Overall station footprint of just 3.8 × 3.8 m is 3.5 × **smaller** than a standard LNG station
- Cellular **remote monitoring** with control and diagnostics via smart devices
- Integrated module for fueling of **CNG and bio-gas** fueled vehicles
- Composite assembly incorporating LNG tank, pump skid and SoF
- Zero on-site welding
- Supplied factory **CE marked**

Compact 3-in-1 is fully optimized for all types of natural gas vehicles.



Skid Mounted Stations

Skid mounted stations consist of just two modules and are ideal for mid-sized vehicle fleets.

Typical sites include private company yards and small ports and these compact units are also suited to remote locations and are easily relocatable making them an excellent temporary fueling solution.

“Plug and Play”

Chart offers a full service scope and “Plug and Play” installation is typically completed within just a few days.

The stations offer fully automated operation and remote control access and are loaded with our latest technology for maximum safety, accuracy and convenience.

Fueling all natural gas vehicles

An additional CNG module can be incorporated to offer a complete natural gas fueling service for LNG, CNG and bio-gas vehicles.

- Minimized footprint
- “Plug and Play” installation
- Storage skid includes cryogenic tank, PBU vaporizer, cryo-pump and LNG dispenser on a single frame

Relocatable assembly making it viable as both a temporary and permanent fueling solution.





Fixed Stations

The proven ergonomic design of our fully automated fixed fueling stations affords both station operators and drivers maximum safety, comfort and convenience.

Quick

Complete fueling process for a typical heavy goods vehicle is completed inside 7 minutes, including card payment of fuel.

Durable

Chart scope includes the “Dynaflow” LNG dispenser, which is engineered to operate in ambient temperatures down to -40°C.

Accurate

The system measures real time density of the LNG delivered to a vehicle for the most precise LNG metering and accurate accounting

Reliable

The metering system carries a life time guarantee and is completely compatible with Saturation on the Fly (SoF) technology.

Main benefits:

- Complete solution from design to commissioning
- LNG, LCNG or combined duel fuel systems available
- Low maintenance and lowest operational costs
- Solutions to suit any vehicle fleet size



Mobile Stations

Mobile stations are based on Chart's ORCA mobile cryogenic tanker.

ORCA delivers a fast fueling solution for up to 15 vehicles each day and is both ADR and EN 13530 compliant.

Complete solution

ORCA is equipped with the highly accurate 'Flowcom 3000' flowmeter, delivery note printer and on-board submerged LNG pump for immediate start (one-button process).

Apri-cooled pump eliminates cool down losses and reduces delivery time.

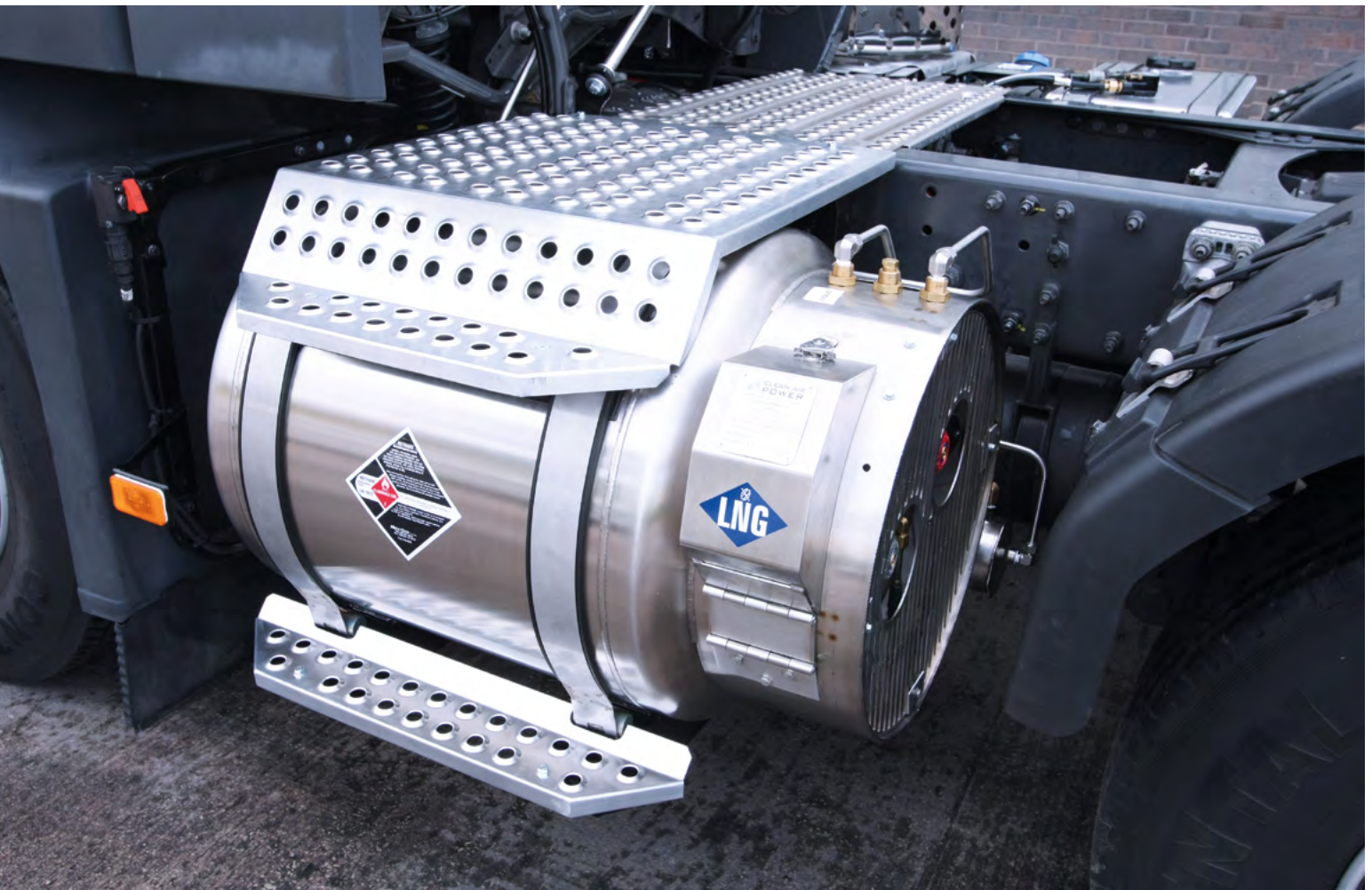
Fuel is dispensed direct to the vehicle fuel tank via a flexible hose.

Flexible

The mobile station requires no civil work and is an ideal entry level solution for start-up, mobile and relocatable applications.

- Transportable and flexible
- Time and place independent
- Optional fully autonomous energy source

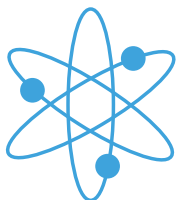
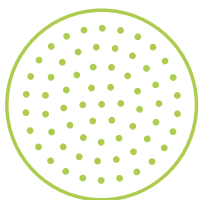




On-Board LNG Fuel Tanks

Chart works with all leading truck and bus manufacturers.

All tanks include austenitic stainless steel inner and outer vessels with plumbing components manufactured from high quality stainless steel, brass and copper.



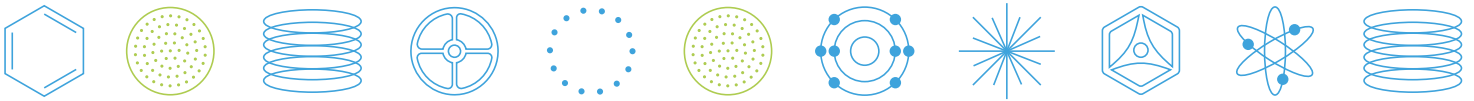
Two main models are available for the European market:

- **UNECE R110** approved system in which the LNG vaporizer and automatic shut-off valve are installed inside the tank's shroud
- **TPED** version in which those two components are external to the tank

Features

- Single hose filling
- Superior holding time
- Proven, state of the art design
- Full compliance with ECE R110
- Single or dual tank configurations
- LNG dedicated or dual fuel vehicles

Vehicle fuel tanks with the highest levels of safety, quality, reliability and compatibility.



LNG Dispensers

The DynaFlow LNG dispensers are specifically designed and proven for fast, accurate and reliable fueling of natural gas vehicles. The system includes a mass flow meter, complete with European type approval based on MID (Measuring Instrument Directive).

Main benefits:

- Fast and accurate LNG fueling
- Measuring system without moving parts
- Permanently submerged metering section
- Real-time dynamic density measurement
- European type approval based on MID
- Card-operated and/or self-service operation
- Can be supplied as part of a mobile or stationary LNG fueling station
- Digital display showing price, amount of gas in kg and price per kg
- Recycling of boil-off gas eliminates emissions during normal use



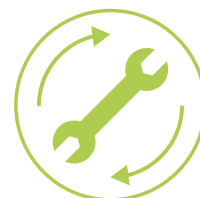


Lifecycle Service

Complete aftermarket service packages to keep your fueling station operating at peak performance. Start-up support, remote monitoring, helpdesk, preventive maintenance, servicing, calibration with qualified personnel across Europe.

Hypercare program for smooth start-up and continuous operation:

- Remote Helpdesk Support 24/7
- Maintenance and Calibration
- Spare Parts Program
- Training





Fueling the Future

Hydrogen Fueling Stations

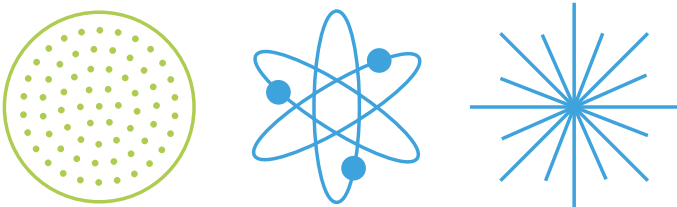
Chart provides a wide variety of stations to cater for hydrogen vehicle fleets of all sizes. All stations are engineered for single hose, no loss fueling with automatic cut-off.

Simple, safe and reliable fueling

Chart fueling stations integrate seamlessly with Chart hydrogen vehicle tanks for optimum safety and reliability. Our patented solutions deliver the simplest and safest liquid hydrogen fueling solution.

Hydrogen Fuel Dispenser

Chart's DynaFlow dispenser is the benchmark for LNG vehicle fueling and we've applied the same expertise to develop a dispenser for delivering hydrogen to trucks and other heavy goods vehicles. As you'd expect from Chart, ergonomic design affords maximum safety, comfort and reliability to operators and fill times are consistent with equivalent diesel fueled vehicles. Like the DynaFlow, accurate measuring and recording comes courtesy of systems developed by Chart subsidiary Flow



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