

LNG – liquefied natural gas / bioLNG – liquefied biomethane

The technology of liquefied natural gas, LNG, or LCNG, is another promising development stage of natural gas utilized in transportation and industry. Our target in this area is to provide a turnkey general delivery.

Use of LNG / bioLNG

- filling of vehicles using natural gas as fuel
- replacement supply
- stationary source of natural gas for energy purposes

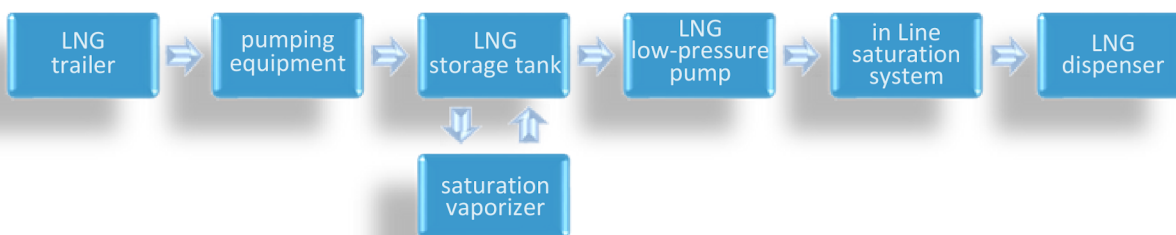
Advantages of using LNG / bioLNG:

- alternative – diversified gas source (alternative to gas connection)
- flexible source (eg to cover peak consumption or a source for seasonal consumption)
- significantly higher energy per unit volume than CNG
- LNG filling stations are characterized by a simple construction, quiet operation
- and, above all, comparable fuel filling times as with conventional liquids

Filling of vehicles - LNG and LCNG station

Unlike CNG stations, these technologies do not require a gas connection. Compared to CNG stations, a lower electrical input is sufficient, and therefore lower electricity costs. The simplicity of the device also leads to lower service costs. LNG is stored in cryogenic tanks at very low temperatures.

PIC. BLOCK DIAGRAM OF TYPICAL LNG STATION



The main components of an LNG station

- pumping equipment ensuring safe pumping from supply trailer to the stationary storage tank of the station
- LNG storage tank – vertical or horizontal LNG tank with a volume of 20 to 120 m³, vacuum insulated – max. pressure of 11 or 18 bar
- vaporizer (saturation) ensuring a pressure increase in the tank to the required values (to the pressure of saturated vapors)
- low-pressure pump, usually a centrifugal type, providing LNG supplies to the dispenser
- IN LINE saturation system guaranteeing the LNG supplies to the filling device, then to the vehicle tank at a preset and constant temperature according to the requirements of the vehicle
- filling equipment – LNG dispenser for filling vehicle tanks with liquefied natural gas
- control and monitoring system securing the traffic control and the station parameters control

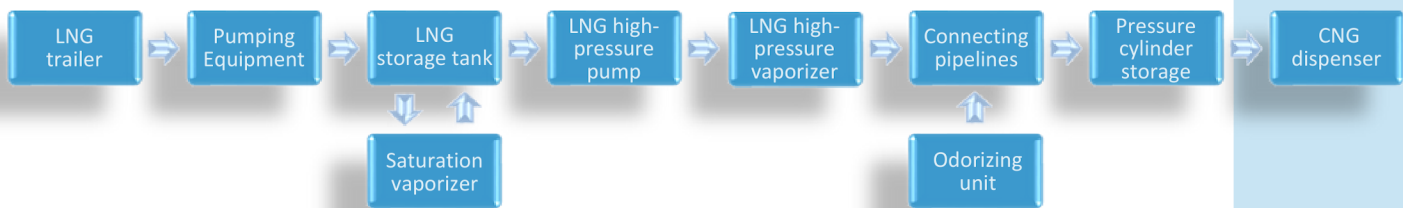
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Technical description of LCNG station - main equipment of the station

- Trailer LNG pumping equipment - ensures safe pumping from the supply trucks to the stationary tank of the station.
- LNG storage tank - vertical or horizontal LNG storage tank with volumes of 20 to 120 m³, vacuum insulated - max. pressure 11 or 18 bar.
- Vaporizer (saturation) - ensures that the temperature and pressure in the reservoir are raised to the desired values (to saturated vapour pressure).
- High pressure pump - usually a piston pump provides LNG supply to the high pressure vaporizer.
- High-pressure evaporator - provides the change of state from liquid to gas and heating of the gas (CNG) to a temperature suitable for use in downstream CNG technologies.
- Odorization unit - used for odorization of gas (LNG is not odorized)
- CNG tank - divided into 2 to 3 sections, equipped with priority panel for filling control
- Filling device - CNG dispenser for filling vehicle tanks with compressed natural gas.
- Control and monitoring system - provides operation control and control of station parameters.

PIC. BLOCK DIAGRAM OF TYPICAL LCNG STATION

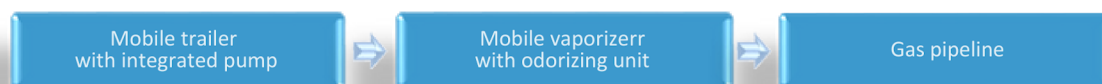


Alternative supply in the form of LNG

Mobile spare supply

It is used in case of breakdowns, outages, consumption peaks, for short- and medium-term substitute gas supply. The key components of the technology are a mobile storage tank (trailer) and a mobile vaporisation unit (vaporiser).

PIC. BLOCK DIAGRAM OF MOBILE SPARE SUPPLY



Stationary LNG source

A Stationary LNG Source is used for a long-term or permanent supply of gas in locations without a connection, during long downtimes, or during consumption peaks. The key parts are: a mobile container (trailer), a stationary container, a pump, and a mobile vaporizing unit (vaporizer).

PIC. BLOCK DIAGRAM OF STACIONARY LNG SOURCE



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