

CIMC ENRIC

DRIVE NEW VALUE MOVING THE WORLD

SHIJIAZHUANG ENRIC GAS EQUIPMENT CO., LTD.

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Company Website

CIMC ENRIC

YOUR GLOBAL PARTNER IN GAS INDUSTRY



CNG

COMPRESSED NATURAL GAS

SHIJIAZHUANG ENRIC GAS EQUIPMENT CO., LTD.
www.cimc-enric.com

OUR VISION

To be a Respectable Global Leader in Clean Energy, Chemical and Food industry

COMPANY INTRODUCTION

CIMC ENRIC is an energy, chemical and food equipment industry platform of CIMC.

All endeavors will be taken to ensure its role as a manufacturer of transportation, storage and processing equipment and a provider engineering services and system solutions in energy, chemical and food equipment industries.

After years of rapid development, CIMC ENRIC has become a leading service provider and an important equipment manufacturer.

CIMC ENRIC now have over 20 member enterprises at home and abroad as well as more than 20 manufacturing bases and international leading R&D centers in China, Germany, Netherlands, Denmark, Belgium and many other countries world wide. It has established a marketing network covering such regions and countries as Europe, South America, Central Asia, Southeast Asia, China, Thailand, Nigeria, Pakistan and Uzbekistan and further extending to other regions in the world.



What is Natural Gas?

Natural gas is a fossil energy source that formed deep beneath the earth's surface. Natural gas contains many different compounds. The largest component of natural gas is methane, a compound with one carbon atom and four hydrogen atoms (CH₄).

Advantages of using Natural Gas?

Natural gas is the cleanest-burning hydrocarbon. It is abundant and versatile, helping meet growing demand for energy globally, and able to partner with renewable energy sources.

- It's safer and easier to store when compared to other fossil fuels.
- Natural gas is extremely reliable
- Natural gas is less expensive than other fossil fuels.



What is CNG?

CNG stands for Compressed Natural Gas, which is a cleaner, greener and cost effective energy solution.

CNG Value Chain

CIMC ENRIC has been in CNG industry for many years, with professional expertise team, building our solution of the whole CNG Value Chain, for supporting our client from end to end.

- CNG Compression
- CNG Storage
- CNG transport (Virtual Gas Pipeline)
- CNG Pressure Regulating and Metering Station

CNG Application

- Power generation for industrial and residential usage
- Fuel for boilers in a variety of manufacturing industries
- Feedstock for Petrochemicals plants, methanol
- Fuel used in Natural Gas Vehicles (NGVs)/ CNG





CNG TUBE SKID Typical Parameters

Cylinder Type	Skid Size	Working Pressure bar	Tube Diameter mm	Tube QTY	Water Volume M ³	Gas Weight Kg	Gas Capacity SCM
Type I	20ft	250	559	12	13.02	2,848	3,955
	40ft	250	559	11	26.73	5,846	8,117
	40ft	250	559	12	29.16	6,377	8,855
Type II	40ft	250	559	12	28.26	6,180	8,580

CNG TUBE TRAILER

CNG Tube Trailer is a semi-trailer consists of CNG Tube Skid and tailor-made Chassis



CNG TUBE SKID

CIMC ENRIC has independently developed the CNG Tube Skid, which is mainly made up of jumbo seamless cylinders, frame and operation cabinet, along with cylinder valves, draining valves, quick connector, pressure gauge, thermometer, safety devices (rupture discs and fusible alloy), and all connecting manifolds.

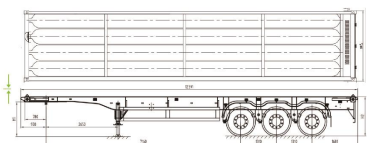


CHASSIS

CIMC ENRIC provides a strong chassis according to specific road condition in user's country, including the configuration of axles, fires, suspension, grounding connection etc

Enric can manufacture Type I and Type II CNG tube skids with customized requirement, the size from 10FT to 40FT with 6 to 16 cylinder. Enric can provide CNG Tube Skid conforming to the ISO standard or DOT standard, now we have been certified by BV, TC, ABS, KGS, TPED etc, authoritative institutions in the world.

Enric always help our customers to choose best solution according local regulation and standards ,weight limitation etc and our market share ranks the first place for years. Enric brand CNG TUBE TRAILER has been exported to more than 30 countries worldwide, enjoying high reputation.

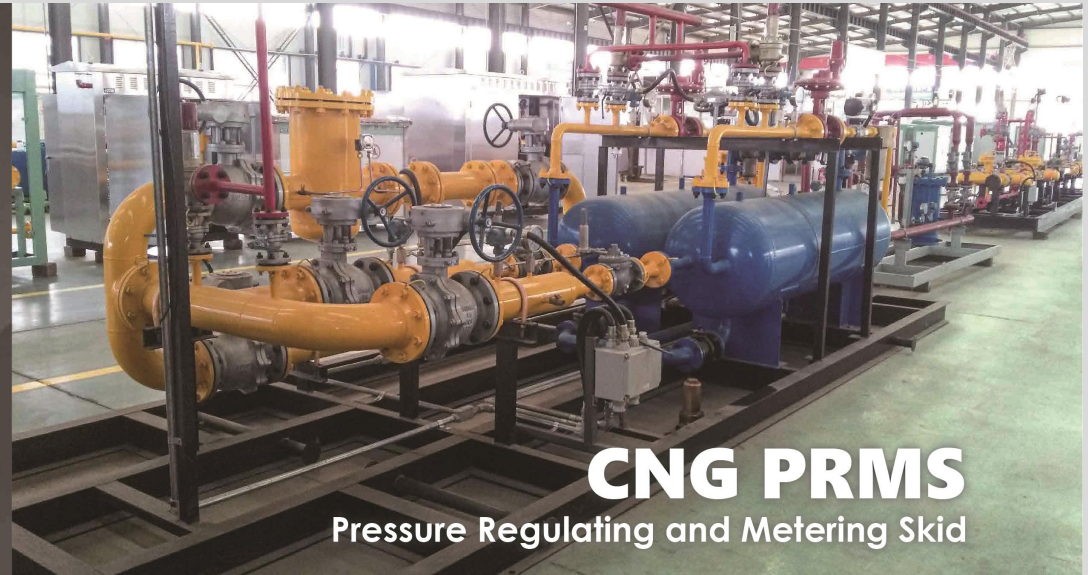


Global Presence of ENRIC CNG TUBE SKIDS





CNG COMPRESSOR



CNG PRMS

Pressure Regulating and Metering Skid

System Constitution

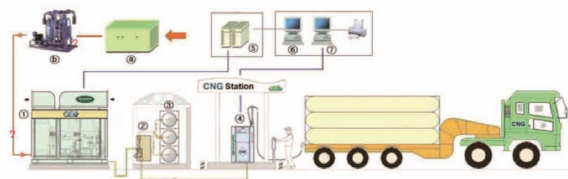
- * Pretreatment Module
- * Compression Module
- * Gas Storage Module
- * Gas Filling Module/Gas Discharging Module
- * Station Room Module

System Advantage:

- * Standardized design, modular integration & fast field installation
- * PLC control system, high degree of automation, less oil lubrication
- * Self-recycling function with zero emission
- * Low energy consumption, fast return of investment
- * Flexible capacity expansion by module added
- * Installation period: 7-10 days

CNG MOTHER STATION

CNG Mother Station is a infrastructure that connects the gas source, it facilitates the movement of CNG gas to locations without gas supply. Natural gas comes from pipeline network or wellhead, after filtration, desulfurization, drying and metering etc, gas will go through compressor system, then CNG Tube Trailers can be filled by filling post. The key equipment of a mother station include compressors, gas dryer, storage and dispensers, etc. Enric designs and manufactures robust, efficient compression equipment with flexible parameters to meet the clients' reasonable requirements for redundancy and additional capacity.



- ① Compressor Package
- ② Priority Panel
- ③ Storage Cylinder
- ④ Dispenser
- ⑤ PLC Controller & Motor Starter
- ⑥ SCADA System (Optional)
- ⑦ Card Key System (Optional)
- ⑧ Gas Detectors
- ⑨ Gas Regulating System
- ⑩ Gas Dryer (if Necessary)

CNG PRMS (Pressure Reduction and Metering Skid)

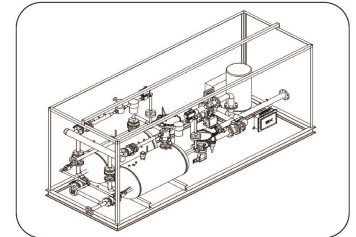
Is used for offloading the gas after filtering, heating, regulating and metering the gas flow from high pressure CNG in the CNG Tube Trailer. It aims to regulate the NG outlet pressure to a setting value before NG entering into the consumer's facilities (turbine, GenSet, boiler, furnace, dryer, etc). PRMS is constructed at the consumer's facility and is self-regulated, requiring no human intervention during operation.

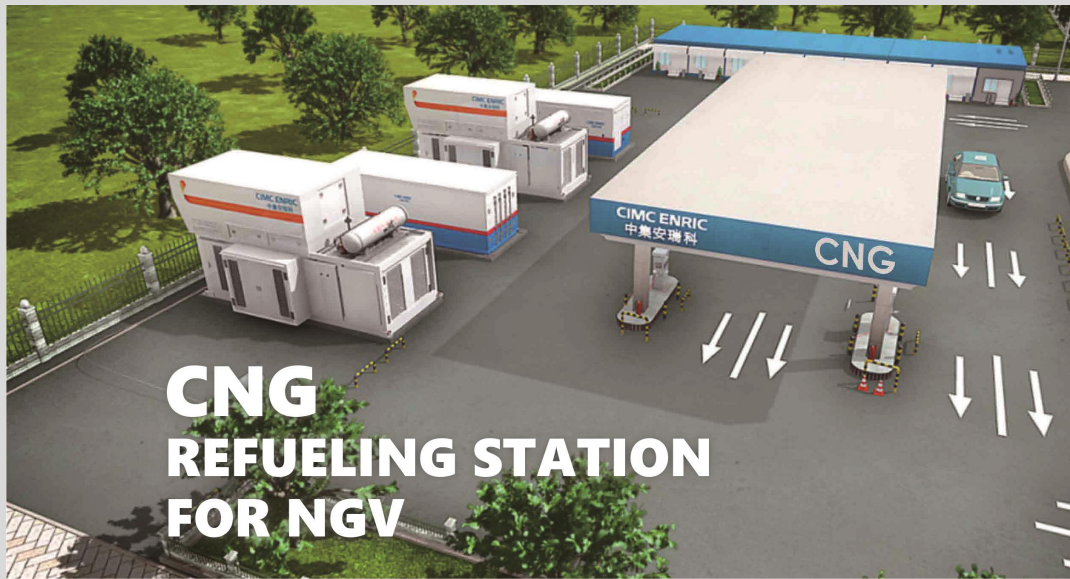
The PRMS skids are supplied in several configurations with single or multi stream and houses suitable filters, safety shut-off valves and metering options for a clean, reliable and safe operation at the end use. These skids are pre-assembled and pre-tested for ease of installation and quick start-up at site. Quantity of stages are depending on the final pressure and regulator capacity. Usually PRMS consists of two streams, one for using and the other for standby in case of repairing, maintenance, inspection, or emergency occurs.



PRMS Constitution

- Offloading System: High pressure hose, High pressure valve, Quick Connector
- Regulating and Heat Exchanging System
- Metering System: Turbine Flow Meter or Mass Flow Meter
- PLC Control System
- Heating system: Electric Heater or Gas-fired boiler





CNG REFUELING STATION FOR NGV

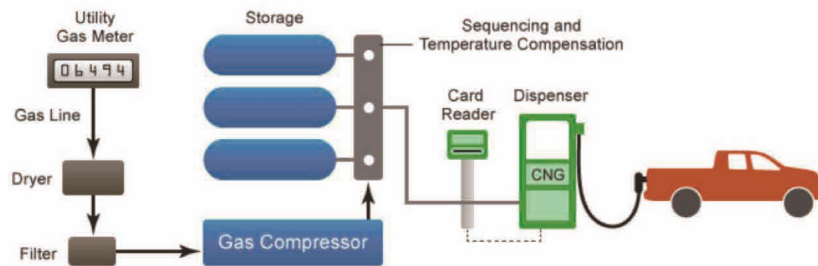
CNG REFUELING STATION

Building a CNG station for a retail application or a fleet requires calculating the right combination of pressure and storage needed for the types of vehicles being fueled. Making the right choices about the size of the compressor and the amount of storage at the station will impact the cost of fuel and range for vehicles.

COMPRESSION SYSTEM

- * Skid-mounted, with less vibration and easy for maintenance;
- * It consists of bare compressor, explosion-proof motor, cooling system, gas circuit system, lubricating system, drainage system, instrument operation system and electrical control system etc;
- * Coated with plastics, the cabinet is water-proof; no welding point during on-site assembly;
- * Capacity: 100-6000Nm³/h
- * Driving power: 45-400kW

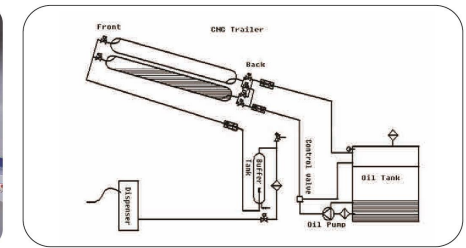
Basic Working Flowchart CNG REFUELING STATION



CNG STORAGE CASCADE is one of the key components in a CNG Refueling Station. It consists of CNG cylinders, steel frame, valves, pressure gauge, manifolds and high-pressure fittings. Usually, the cylinders are arranged in a three-bank cascade, meaning that there is a low-pressure vessel, a mid-pressure vessel and a high-pressure vessel. Priority sequence control panel is

also available according to customers' requirements for the CNG Refueling Station. The total amount of storage will be depending on the number of vehicles, the amount of gas each vehicle requires, and the time frame in which the vehicles need to be filled. The design code of storage cylinders is usually ISO or ASME standard, and 250 bar operation pressure are widely used so far.

Size	Working Pressure bar	Diameter / Length mm	Tube QTY	Water Volume M ³	Gas Weight Kg	Gas Capacity SCM
20ft	250	559 / 5,400	3	3.168	696	968
20ft	250	559 / 5,400	6	6.300	1,360	1,990
30ft	275	559 / 7,600	3	4.200	900	1,260
40ft	275	559 / 10,465	3	6.426	1,405	1,950



CNG HPU HYDRAULIC POWER UNIT

As a patented product of CIMC ENRIC, the HPU CNG Daughter Filling Station will be fed natural gas by a CNG trailer, and no need to rely on a natural gas pipeline network. It uses high pressure hydraulic pump to inject the special fluid into the high pressure CNG Trailer to push the CNG gas out of each tube. And then, the high pressure CNG is injected into the NGV cylinders by CNG dispenser in the station. The whole system is constituted by three parts, i.e. daughter station skid, CNG trailer and gas dispenser, and requires no more other pressure boost equipment.

PRODUCT FEATURES

- Higher gas discharge rate
- Lower power consumption
- Automatic control system
- Lower O&M cost
- Less land area required
- Quick installation period



CNG SOLUTION FOR GAS-FIRED POWER PLANT

MARINE CNG TRANSPORTATION



Gas-fired power plants are using pipeline gas for feeding gas turbine to generate electricity. However, sometimes during the peak period that gas consumption increases massively, the pipeline gas supply is not enough for feeding such peak consumption. Thus, the CNG (Compressed Natural Gas) storage becomes essential in this case. At daytime, compressors work on compressing pipeline gas into CNG storage bank. The CNG cylinders of the storage bank are designed according to ISO11120 standard, which are able to hold and store 250bar CNG. While peak time is coming, the CNG storage bank will be ready to discharge and supply gas to gas turbine for generating electricity to achieve uninterrupted power supply.

Among all possibilities, compressed natural gas (CNG) technology seems to be an effective way for limited distance transport of gas like the case under exam. Technically this technology is quite easy to deploy and with limited requirements for facilities and infrastructure.

Pilot implementation of marine CNG technology is here considered to transport gas from Gresik facilities to a receiving point located in Lombok (about 300 Nautical Miles from Gresik). The gas will be utilized as feed gas to power plant in order to cope with peak electricity demand in the evening time (from 14:00 to 20:00) and, therefore, the gas shall be decompressed by pressure regulating system in order to fulfill pressure requirement at Lombok Power Plant.





GLOBAL MARKET



SERVICE & SUPPORT

- Technical consultancy
- Spare parts supply
- Guidance on Installation & Commissioning
- Training of operation and maintenance
- Inspection Station (China)
- Maintenance Service



