



www.valmax.co.kr

Company Profile

# VALMAX TECHNOLOGY CORPORATION

System Integration Expert for Energy Solution

# About Company

VALMAX was founded in 2002 by a group of engineers with extensive experience in the development of custody transfer metering and process control systems related to natural gas, industrial gases and oil products

Based on about 20 years experience, we will be your strong business partner when it comes to system integration for energy solutions in the business area of petrochemical & refinery, hydrogen, shipbuilding & offshore and LNG solution for onshore.

We will create a long and lasting value add for our customers by providing products with competitive solution. And we look forward to opening new frontier, be adaptive to new changes and continue to innovate our products.

Since our foundation in 2002, we have dedicated to improve customer satisfaction and contribute to the development of the energy industry.

We are still making efforts and growing at this moment.





# Asan Factory

Located Asan city, VALMAX's factory have all facilities for the fabrication of control panels, analyzer systems, mechanical, piping and steelwork fabrication and system assembly. And also, we have co-work with specialized companies for professional blast cleaning, welding and coating.

VALMAX's factory is composed of No.1 workshop using for stainless shop and No.2 workshop using for carbon steel shop. And each workshop has a crane of 50 tons and 5 tons.

## OFFICE

- 1<sup>st</sup> Floor : 381 m<sup>2</sup>
- 2<sup>nd</sup> Floor : 611 m<sup>2</sup>

## NO.1 WORKSHOP

- Ceiling Crane (max. 50 Ton)
- Size : 16 (H) X 72 (L) X 27 (W)

## NO.2 WORKSHOP

- Ceiling Crane (max. 5 Ton)
- Size : 11 (H) X 72 (L) X 27 (W)



# Power Plant Oil & Gas

Oil and gas industry operates through a global supply chain that includes domestic and international transport, trading, shipping, ordering, and inventory visibility and control.

Typically, the supply chain is divided into three segments. The upstream segment finds and produces crude oil and natural gas. The midstream segment handles the processing, storing and transporting of energy commodities. And the downstream segment encompasses oil refineries, retail outlets and natural gas distribution companies.

VALMAX is supplying a wide rage of products that span these oil and gas supply chains such as fuel gas supply system for power plant, metering system and analyzer system with high degree technology and over 20 years experience.

- Fuel Gas Supply System / Governor Station
- Custody Metering System
- Analyzer System

## Fuel Gas Supply System Package / Governor Station

### High efficiency and Single point responsibility

Fuel gas supply system is designed to purify natural gas and it can be more efficiently utilized by the gas turbine of power plants. This effective system is important because it prevents damage to the gas turbine and increases the overall efficiency of the system.

VALMAX is only one company which has many references for EPC Turnkey project in Korea.

#### Specialized Know-how

- Many reference for EPC Turnkey project
- Responds swiftly to dispatch engineers to site including overseas
- Saving opportunity cost
- Long term commitment by maintaining the contract without claim
- Over 90% market share in Korea for high pressure field

#### System Integration with

- ESDV / Filter Separator Station
- Suction Scrubber
- Electric / Water Bath Heater
- Pressure regulator
- Metering Station
- HMI Control

According to complicate local regulation, in own personnel current performs that integrated environment permitting system (license), other permission, basic design, detailed design (process, piping, equipment, electric, instrumentation & control, civil, architecture, fire fighting, HVAC, electric corrosion), fabrication design, equipment production, commissioning & comprehensive start-up, erection and site service (Site Maintenance & Supervision).



## Configuration of Fuel Gas Supply System / Governor Station



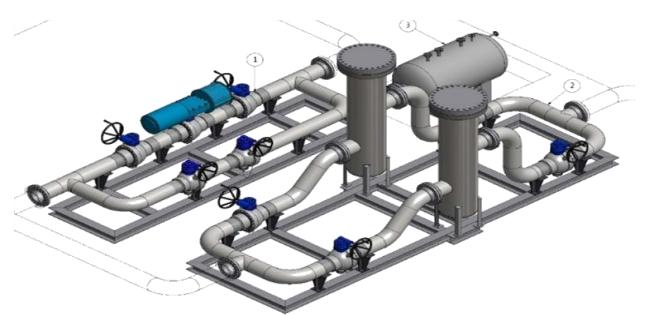
① ESDV Station



② FILTER Station



③ HEATER Station



④ PRV Station



⑤ Metering Station (Flow Measurement)

VALMAX is a specialist for Governor Station having outstanding performance and maintenance work for four (4) of the most extensive Combined Cycle Power Plant in Republic of Korea such as the Jangmoon(1,820MW), Yeouju(1,000MW), Wirye(450MW) and SK Hynix Smart Energy Center - Icheon/Cheongju(600MW) Combined Cycle Power Plant.



## Custody Metering System

### Trusted and Sustainable Performance

Custody Metering System at the delivery point where oil or gas is changing hands forms the basis for invoicing. Every cubic meter of product has to be accurately accounted for its delivery conditions (such as pressure, temperature, contaminants and energy value) closely monitored and recorded.

Metering systems in oil & gas industry have rapidly evolved in terms of sophistication, accuracy and reliability; countless factors have to be taken into account in the design of a metering system, requiring multi-disciplinary specialists with very specific experience and knowledge.

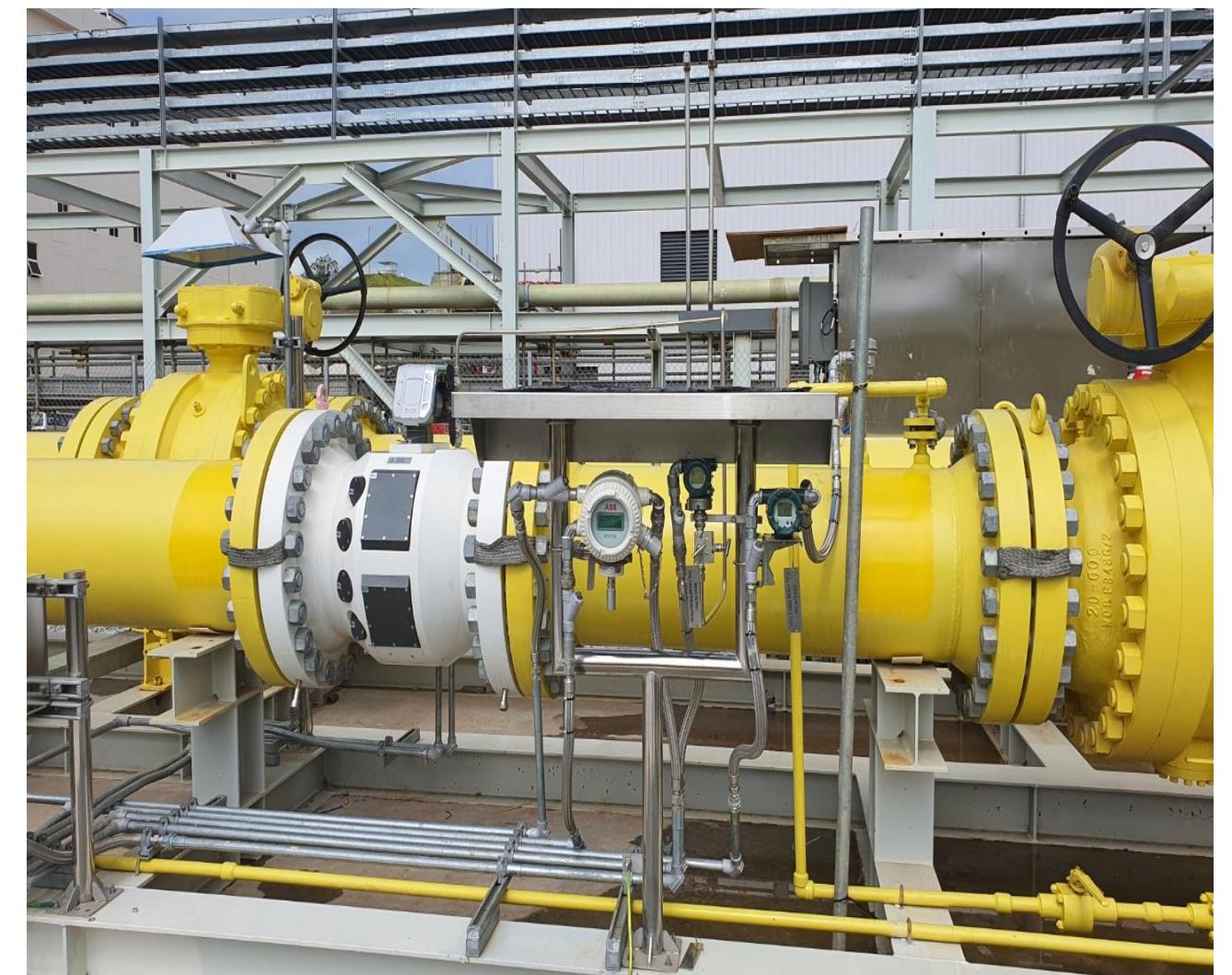
#### High Accuracy

- Highly accuracy and Real Time Monitoring with
  - Flow Meter, Flow Computer, Gas Chromatograph, Transmitter
  - Motorized Valve, Prover and HMI

#### Various Application

- Gas, Oil and Liquid
- Truck and Rail Loading System
- FSRU, LNG Carrier
- Pipelines, Power plants, Heavy Industry
- Oil Refinery, Ship Loading & Unloading

This system can be supplied complete with flow computers, supervisory & HMI systems and PLC or DCS based control systems, packaged analyzer systems and any other ancillaries that may be required. We supply custody metering system with high accuracy in compliance with various customer requirement.



## Analyzer Package System

### Solution for measurement for Oil & Liquid

Analyzer Package System provides solutions for gas and liquid measurement for chemical composition, physical or chemical properties at the production site as well as it can also provide a significant economic return when incorporated into process optimization and advanced control loops or when used for product quality control.

#### High Production Capacity

- Korea's largest production facility compared to competitors
- High concurrent production capacity

#### Flexibility

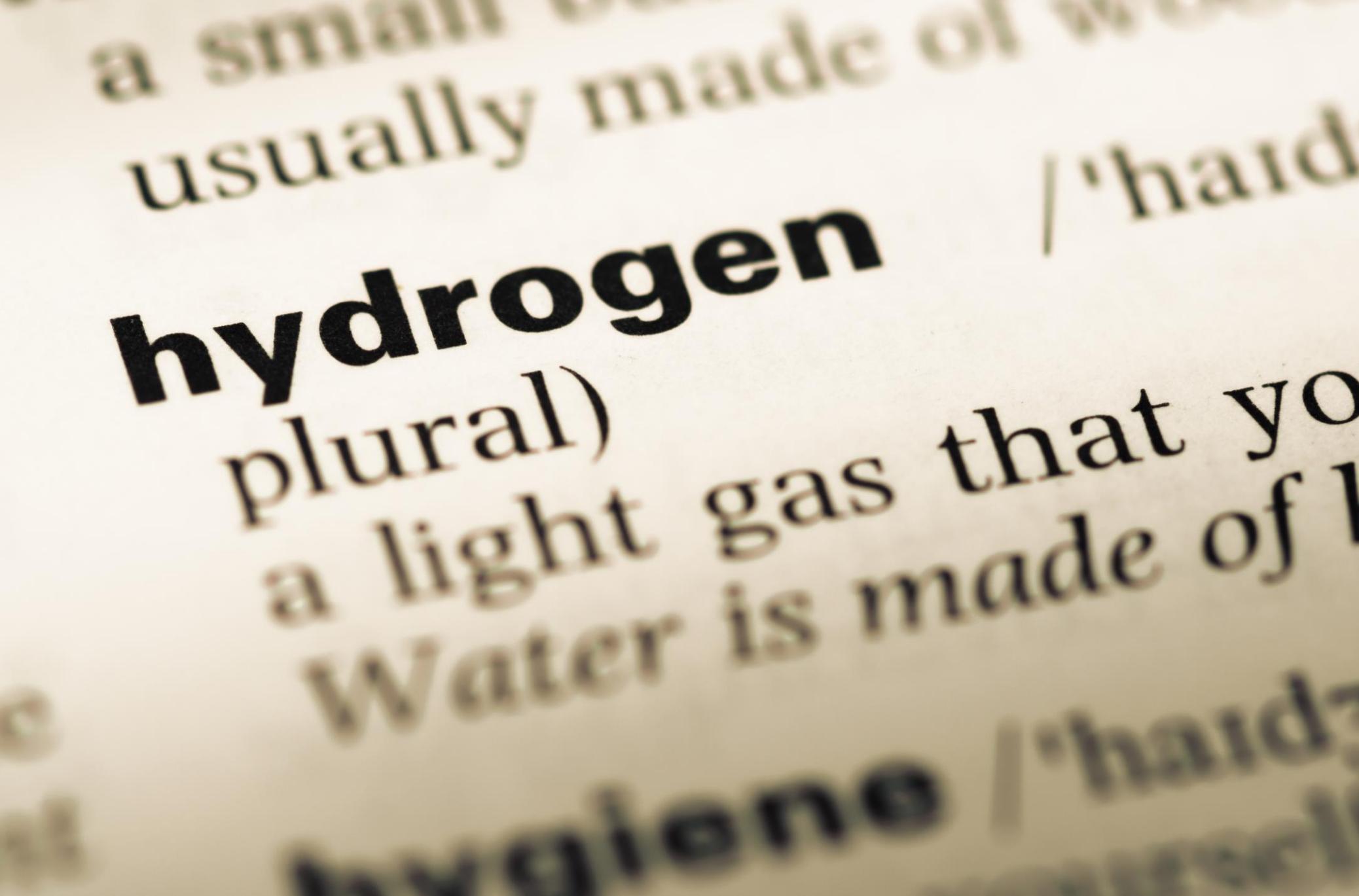
- Optimal customized system supply
- Rich experiences & know-how in various measurement fields
- Easy to control, operating & monitoring system
- Certified systems for using hazardous area

#### System Integration With

- Process and Natural Gas Chromatograph (ABB)
- Gases / Dew Point / Moisture Analyzer
- pH, Conductivity, TOC, Oil in Water, Wobbe Index Analyzer and etc.
- Analyzers for VOCs, PAHs, BTEX and Sulfur compounds
- Odorant (THT, TBM and etc) Analyzer for LNG Industry

Analyzer Package Systems can be supplied complete with sample take-off and conditioning, fully assembled, in pre-fabricated analyzer shelters with explosion-proof HVAC, fire and gas detection. Ready for installation on site with only minimum of field connection to be made.





## Hydrogen Solutions

Hydrogen is a zero-emission fuel burned with oxygen. It can be used in fuel cells or internal combustion engines.

It has begun to be used in commercial fuel cell vehicles, such as passenger cars, and has been used in fuel cell buses for many years. It is also used as a fuel for spacecraft propulsion.

The KOREA government announced that the roadmap for hydrogen economy in January 2019 so that KOREA can build the world's vest hydrogen economy.

With regard this, VALMAS is focusing on building a hydrogen refueling station to activate and lead hydrogen industry.

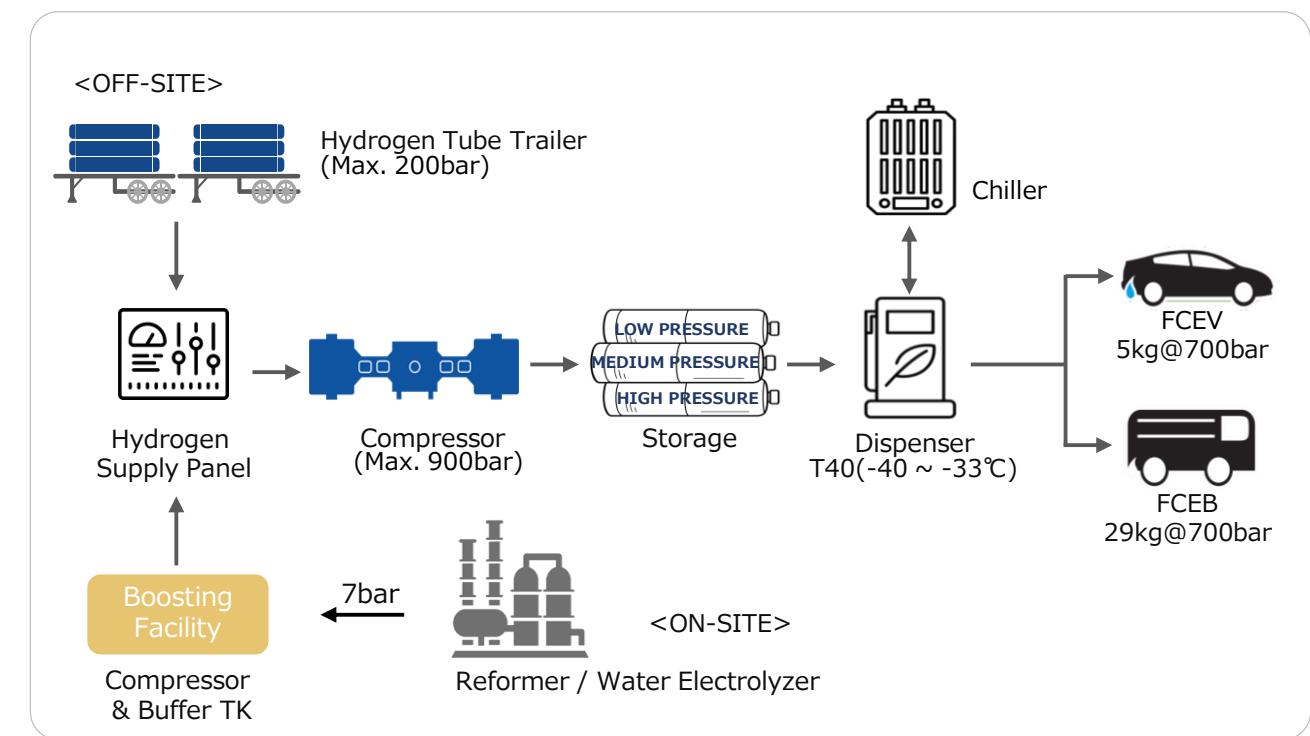
- Hydrogen Refueling Station
- Hydrogen Dispenser

## Hydrogen Refueling Station (HRS)

### Eco-friendly Energy : Hydrogen

Hydrogen energy is clean, pollution-free and an ideal energy source because it enables clean and highly efficient fuel cells that convert hydrogen into electricity.

We provide more efficient design, engineering, manufacturing, commissioning, training and service for hydrogen charging systems to meet customer requirements. Our Hydrogen Refueling Station (HRS) is manufactured as package module to minimize installation location and shorten construction period.



	Model	Capacity	No. of Charging Car / day
On-Site	Hygeia-100	170kg/day	34
	Hygeia-200	415kg/day	83
	Hygeia-300	500kg/day	100
Off-Site	VMX-250	250kg/day	50
	VMX-500	500kg/day	100
	VMX-750	750kg/day	150
	VMX-1000	1000kg/day	200

## Hydrogen Dispenser

### Eco-friendly Energy : Hydrogen

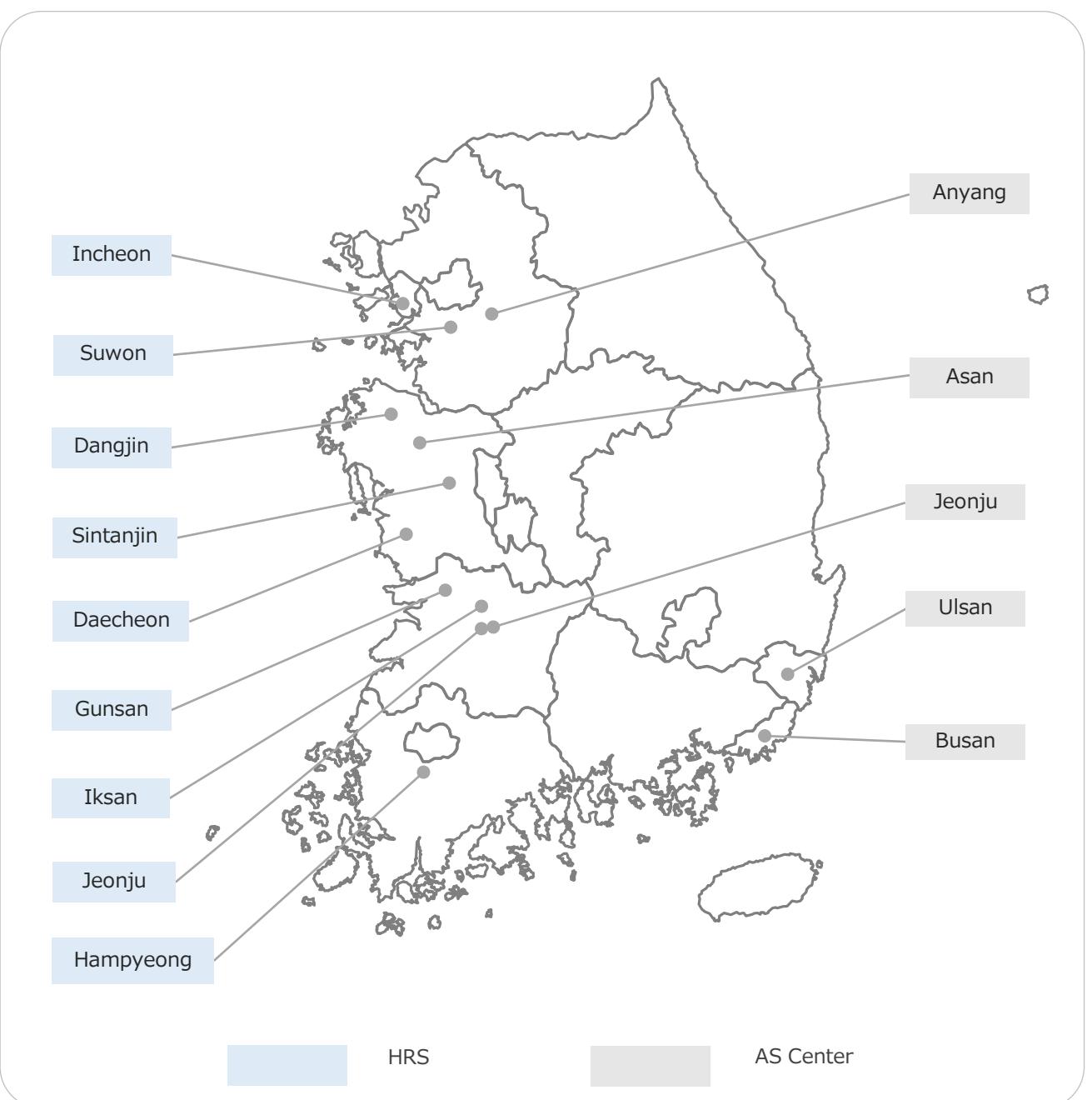
Hydrogen Dispenser is produced and supplied by VALMAX and TOKICO, a Japanese hydrogen company, through technical cooperation. TOKICO's Hydrogen Dispenser <NEORISE> has compact size using a micro-channel heat exchanger and having excellent performance and safety.



- Control Switches**
  - Safety & Convenience Improvement
- Coriolis Flowmeter**
  - Maximized measured flow : 0.05~5.0kg/min
- Emergency Breakaway Coupling**
  - Emergency Separation Function
  - Prevention Hose Breakage & Dispenser Reverse
- Self Arm (Option)**
  - Prevention of damage & reduction risk of stopping HRS due to falling

Specification	1600 x 550 x 2100
Flow Range	0.05 ~ 5.0kg/min
Accuracy	±1.5%
Max. Charge Pressure	87.5MPa

\* Protocol Certification for SAE J2601, JPEC-S 0003



Status of VALMAX's Hydrogen Refueling Station & AS Center



# Shipbuilding & Offshore

LNG is a sustainable, widely available and cost-effective alternative fuel and an important driving force of modern shipping.

Using LNG as power source comes with a unique set of design and engineering challenges, requiring strict temperature and pressure control mechanisms to manage potential complications, such as boil-off-gas and methane slippage.

Based on more than 20 years of know-how and technology in the gas field, VALMAX is opening up new market in LNG solution for shipbuilding and offshore.

- LNG Fuel Gas Supply System for Ship
- LNG Bunkering Station
- BOG Re-condenser

## Fuel Gas Supply System for Ship

### New Generation of the Ship

We are supplying smart Fuel gas supply system package which applicable to the ships of various sizes using LNG as their fuel.

VALMAX's FGSS is fully flexible, with several options available regarding the engine type, tank configuration, pressure control system and ship type. Each FGSS is based on proven solutions and international code and can be tailored as necessary to fit individual ships.

#### Flexible

- Available for all engine type and pressure types
- Application of various type of tanks (Type C)
- Experts installation and commissioning according to vessel type

#### Reliable

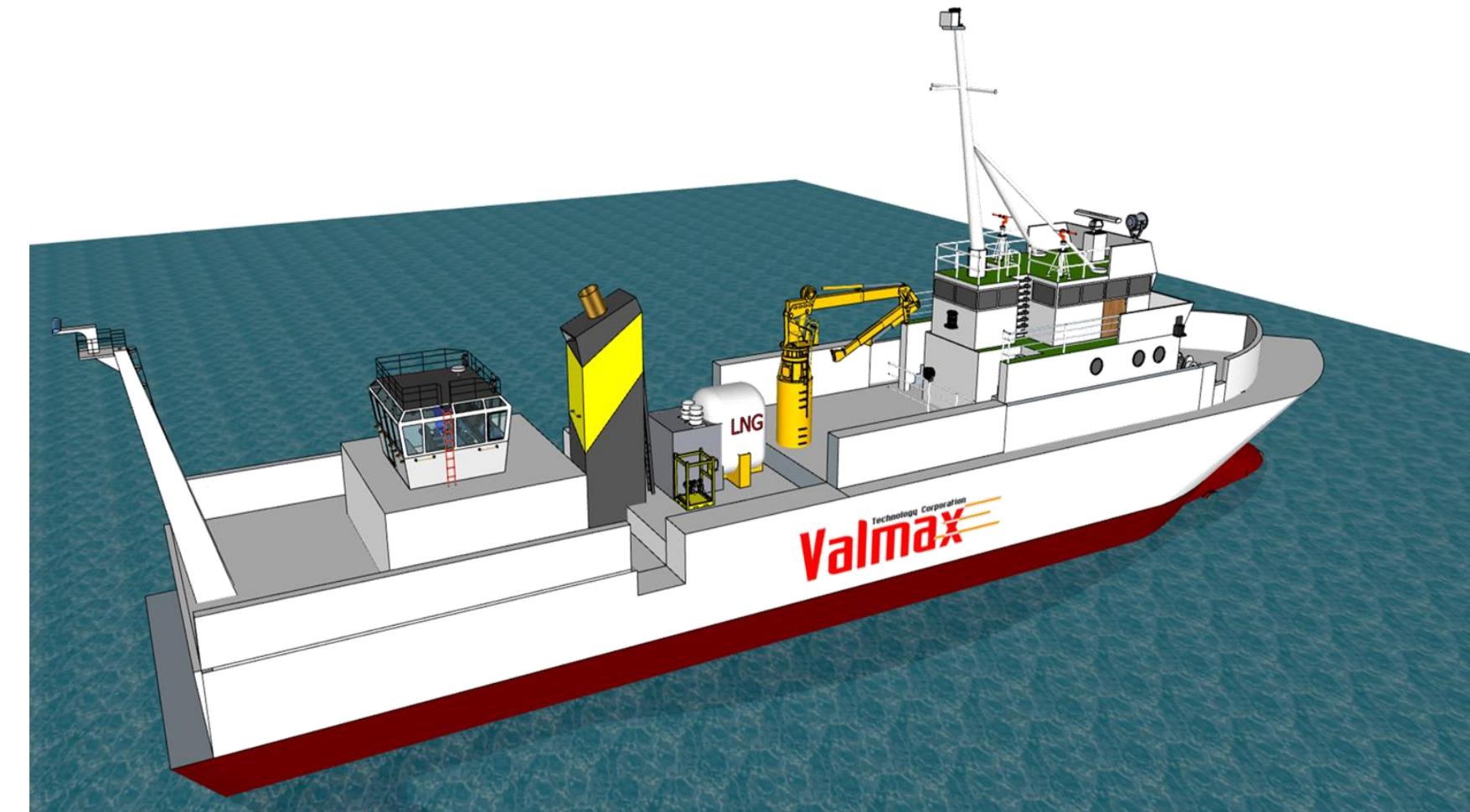
- Designing in compliance with IGF Code and Rule & Regulation
- Guidance and Support from first to last stage
- Experts having wide experience regarding the LNG fueled Ship

#### Smart

- Optimized design of FGSS configuration according to the ship type
- Integrated Control, Monitoring and Automation System

### VALMAX SUPPLY

- FGSS Total Package
- LNG Fuel Tank (Type-C or Lattice Shape)
- LNG Fuel Pump (Submerged or Deep Well Type)
- Tank Connection Space (TCS) or Fuel Preparation Room (FPR) include : LNG Vaporizer, Pressure Buildup Unit (PBU), Super Heater, Buffer Tank
- LNG Bunkering Station
- FGSS Control System with HMI Interface
- Technical Support for LNG filling
- Gas Operation & Commissioning / Training on Office & Site



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## LNG Bunkering Station

[Applicable to LNG Fuelled Ship & LNG Bunkering Ship](#)

LNG Bunkering Station provides connections to the vessel's fuel gas system and fuel tanks to allow loading of LNG fuel and , in some cases, return of displaced vapour from the fuel tanks.

Due to the additional hazards present with LNG, the requirements and capabilities of LNG Bunkering Stations on LNG fueled ships are more complex than for oil fueled ships and required safety and technology.



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## BOG Re-Condenser for LNG Re-liquefaction System

[Applicable to LNGC, FSRU, LNG Fuelled Ship and Onshore Gas Plant](#)

LNG in storage tank will be evaporating and giving off natural gas constantly and also boil-off-gas is continuously generated due to heat leakage through the insulation of the fuel storage tank.

BOG Re-condenser is re-liquefying and re-storing remained BOG in fuel storage tank for consuming the boil-off gas efficiently in engines or boilers of the vessel.



## Cargo Handling System (CHS)

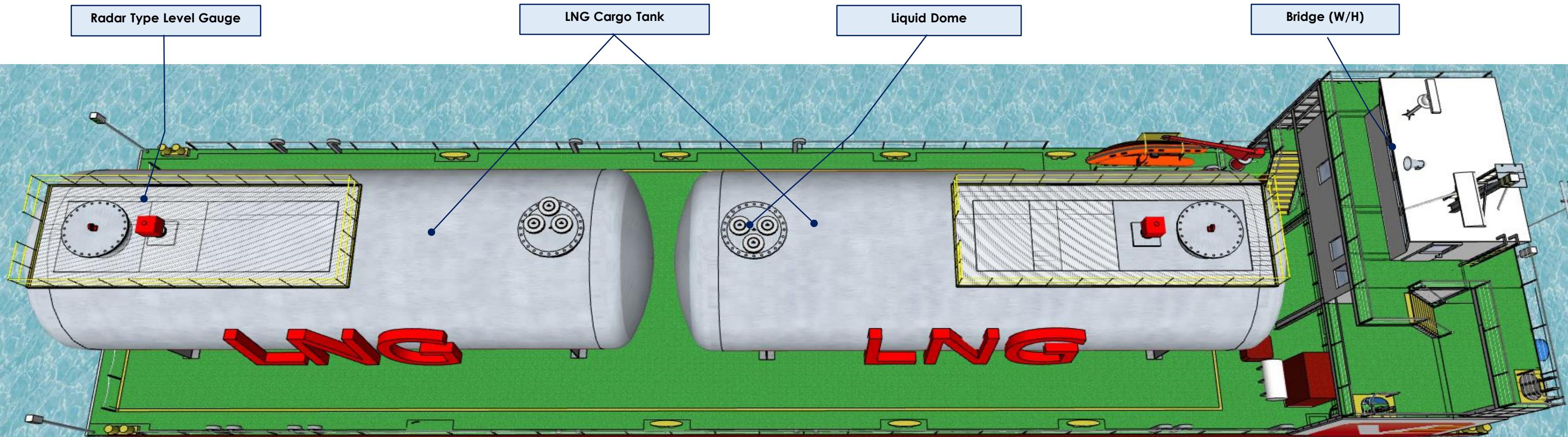
### For Small Scale LNG Bunkering Ship, LNGC and FSU

VALAMX supply a cargo handling system that can be applied to small scale LNG bunkering vessel, LNG Carrier and LNG FSU.

Recently, there are growing demands for the small-scale transport of LNG to end users that are located in areas where pipelines are not feasible or economically viable.

#### VALMAX SUPPLY

- System Integration for CHS
- Type-C LNG Cargo Tank
- LNG Bunkering Manifold
- LNG Cargo Pump
- LNG Vaporizers
- BOG Pre-heater
- BOG Compressor with Aft-cooler
- Metering System (Coriolis or Ultrasonic)
- LNG Quick Coupler with Break Away
- Control System with HMI Interface
- Onboard Operation & Commissioning
- Training on Office & Site





## LNG Solution for Onshore

LNG is a sustainable, widely available and cost-effective alternative fuel and an important driving force of modern shipping.

Using LNG as power source comes with a unique set of design and engineering challenges, requiring strict temperature and pressure control mechanisms to manage potential complications, such as boil-off-gas and methane slippage.

Based on more than 20 years of know-how and technology in the gas field, VALMAX is opening up new market in LNG solution for shipbuilding and offshore.

- LNG Fueling Station
- LNG Satellite Station

## LNG Fueling Station

### Innovated & Optimized System

LNG Fueling Station is a system that charges LNG fuel directly into the fuel container of the LNG vehicle. The modular LNG pumps and dispensers can simplify & reduce installation time and cost compared to conventional installation methods. And the vacuum insulation used in the LNG Fueling Station prevents the boil-off and provides environmental safety to the customers.

VALMAX supply system integration, LNG TYPE C tank & Pump Station, LNG Dispenser, LNG & BOG quick coupler & Break away, Measurement (Coriolis&Ultrasonic), System Installation and Commissioning & Operation.



### Simplification

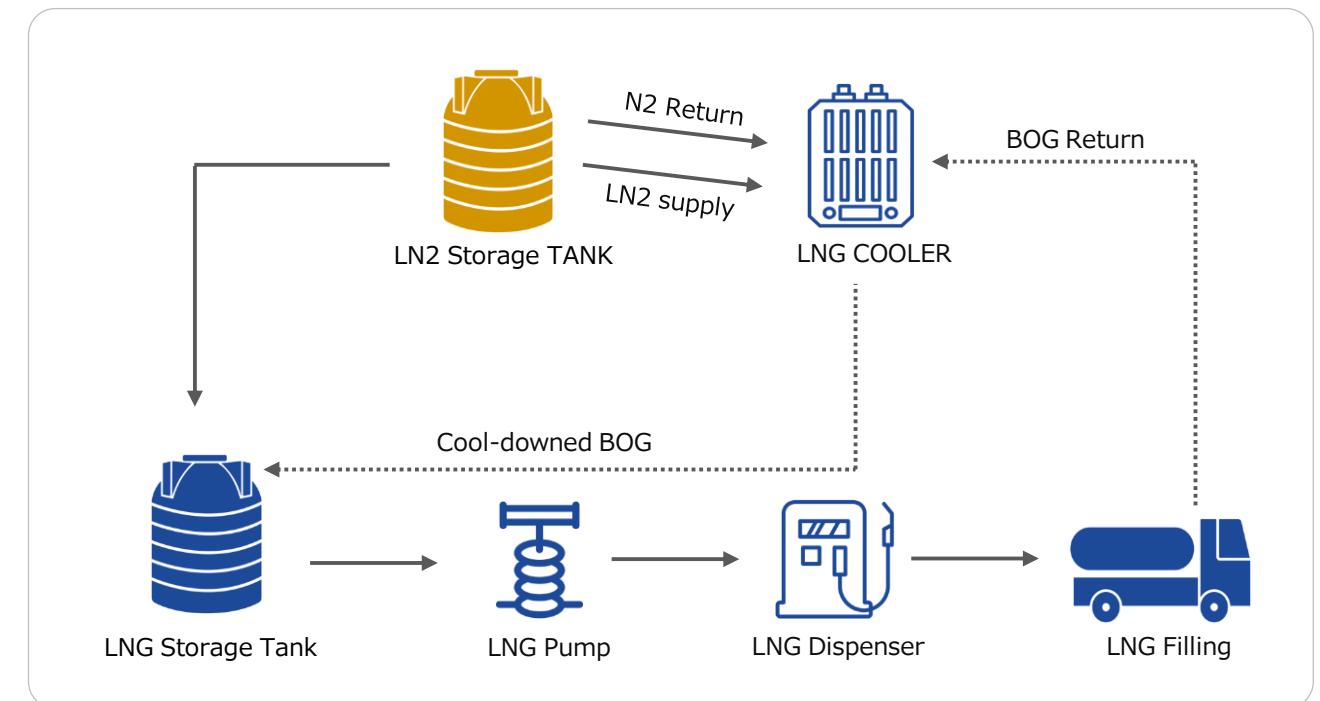
- Modular type for easy installation and minimum space

### Customized

- Flow Control System & User friendly HMI System

### Various Application

- LNG Trailer & Truck, LNG Carrier, LNG Fuelled Ships and LNG Filling Facility



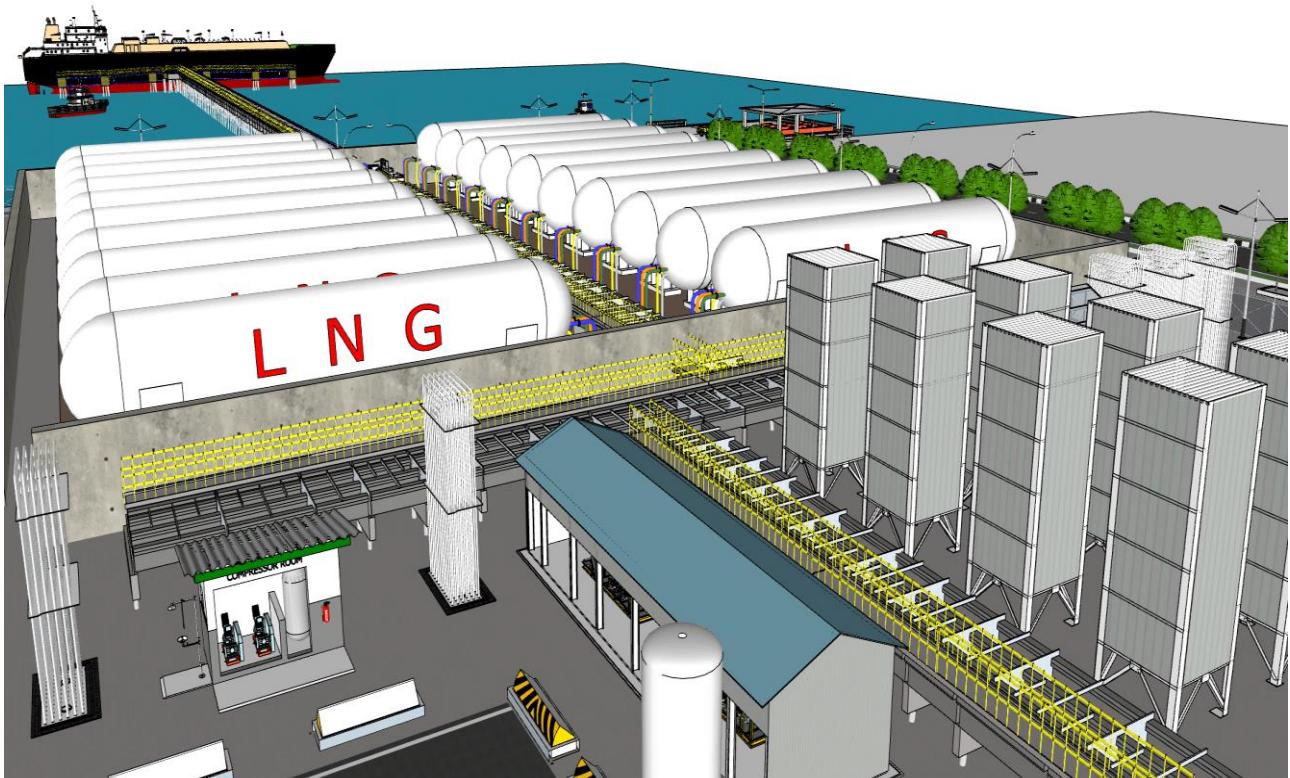
<Configuration of LNG Fueling Station>

## **Small Scale LNG Satellite Station**

### **Best LNG Supply Solution for Remote Area**

LNG Satellite Station is best solution for remote area to supply natural gas to end users at home, power plant and industry. LNG Satellite Station is designed to supply natural gas to areas that not supplied by pipeline network.

LNG is stored, vaporized and supplied after pressure is adjusted at the LNG receiving terminal by tank lorry. This system consists of LNG Storage tank, Vaporizer, Interconnecting piping, Control and Emergency system.



### **VALMAX SUPPLY**

- System Integration
- LNG Type C Storage Tank & Pump Station
- LNG Bunkering Manifold
- LNG Ambient Vaporizer
- BOG Pre-heater, BOG Compressor
- LNG Quick Coupler with Break Away
- Control System with HMI Interface
- Site Operation & Commissioning
- Site Construction (Option)
- Jetty Foundation (Option)
- System Installation (Option)

#### **Automation**

- Fully automation with control and emergency system without operating personnel

#### **Comfort**

- Wireless Technology and Control System

#### **Various Application**

- LNG Refueling System, Liquefier Storage and Distribution System
- Re-Gasification System



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