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Високи приходи

YeS Charging System

READY FOR THE FUTURE
ГОТОВИ ЗА БЪДЕЩЕТО

LNG REFUELING SYSTEM

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YeS Charging System

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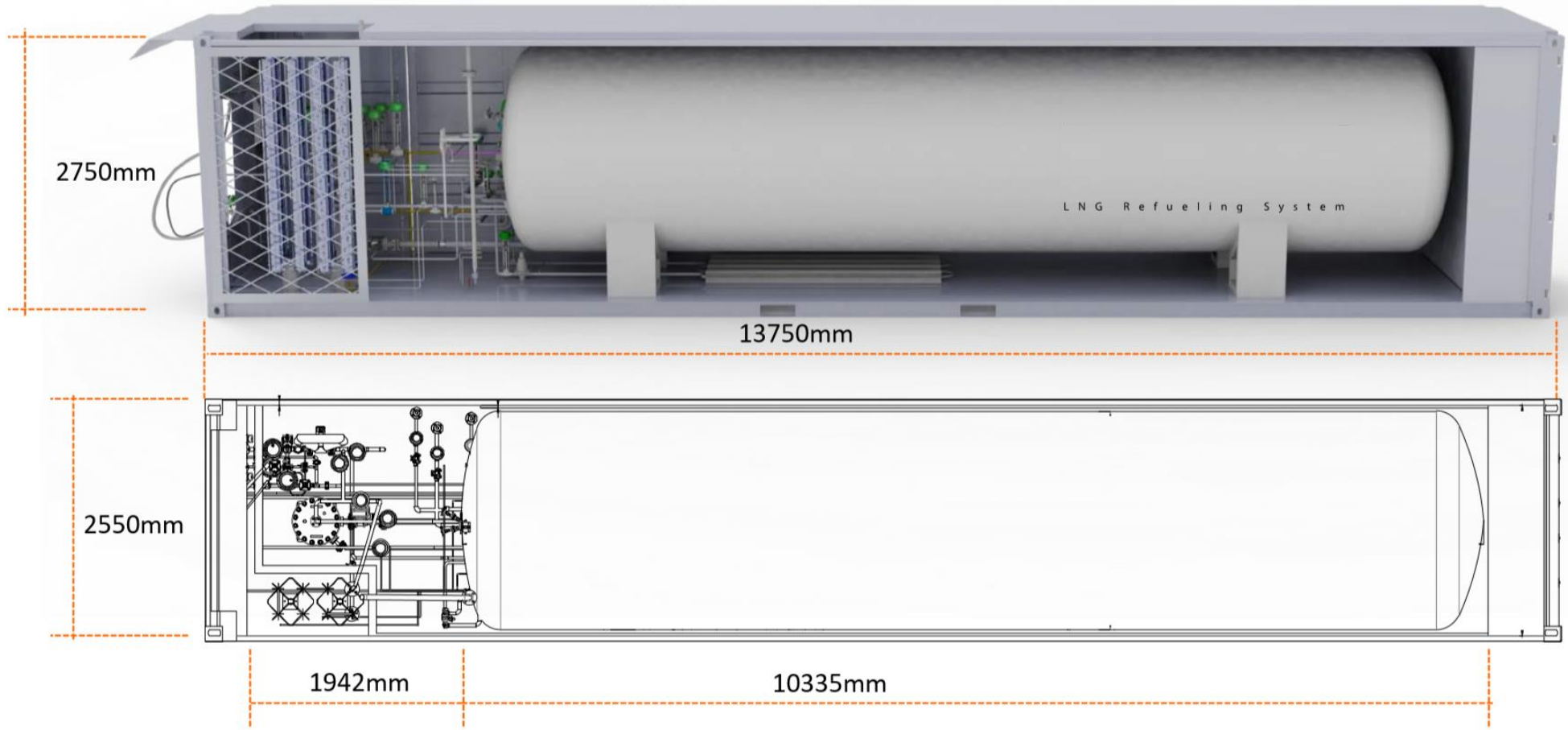
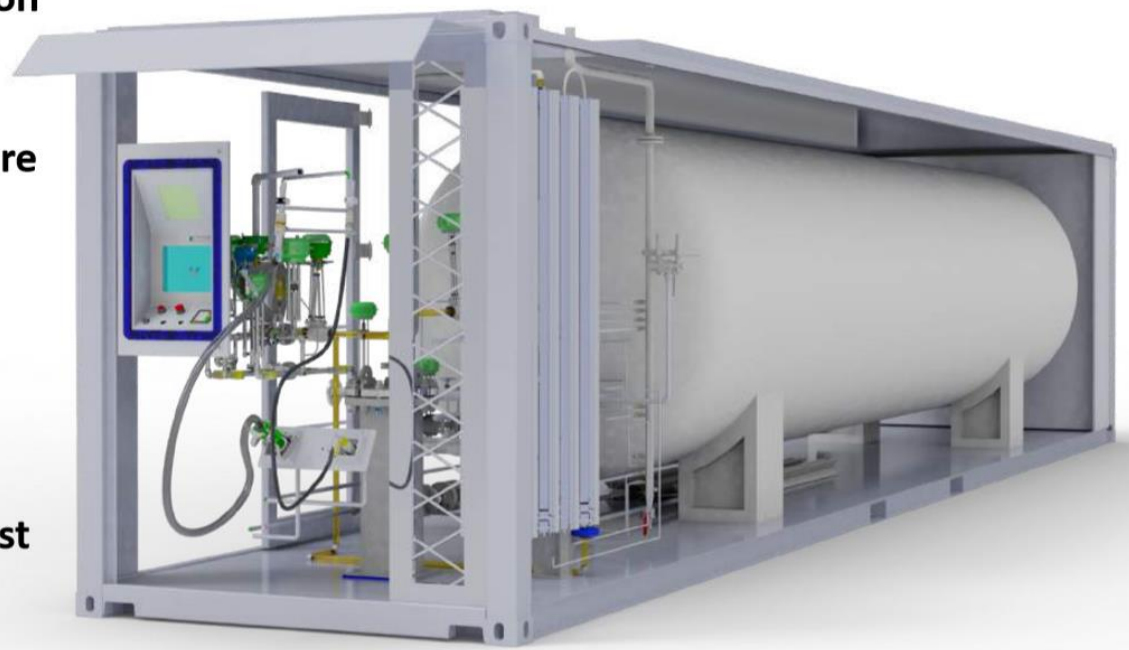
LNG Modulo Features



20 best Features of LNG Modulo

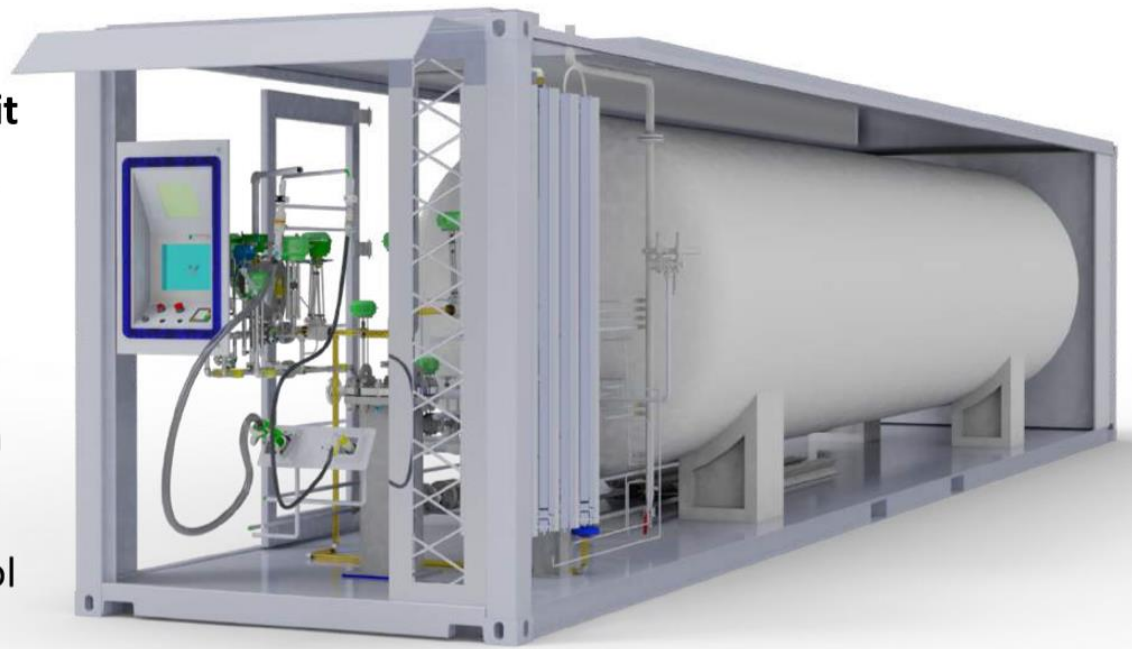
1. **Optimum starting solution for new places, low consumption with later capacity extension feature to serve enlarged fleets**
2. Fast equipment delivery and factory provided documentation
3. **In factory fully tested device for plug & play fast and safe commissioning**
4. Solely 380 V/3x40 A electric connection needs from site
5. **Increased LNG holding time**



6. **No cool-down time, less then 6 minutes filling time**
7. Fireproof boundary walls to decrease minimum safety distance requirements
8. **Able to relocate if needed, what protects the investment**
9. Horizontal LNG storage tank for compact and transportable design
10. **Capacity extension ability from 20 m³ to 65 m³ storage to serve enlarged fleet requirement**

20 best Features of LNG Modulo

11. **World first Built-in IPMU, - as Integrated Pumping Measuring Unit**
12. Built-in LNG conditioner system for each temperature requirements
13. **LNG dispenser unit with smart fuelling functions**
14. Automation (PLC) control panel & telemetry enables online remote control and communication



15. **System offered saturated and cold (for Volvo) refueling options**
16. Integrated fleet-card and driver recognition system
17. **Smoke & gas leakage detection**
18. Air preparation unit (dew. point -20^{O}C)
19. **Fully comply with ATEX, PED and MID regulations**
20. Hard-wired ESD design

Details of the Main System Components

Mechanical Description

Ambient Temperature	**: -20 to 45 Opt.: -25 to 50 °C**
Humidity	**: 5 to 95%**
Pressure Equipment Directive	**: 2014/68/EU**
Vessel and Installation Code	**: PED**
Boundary wall	**: Fire resistant, thermo insulated**
Weights & Measure Certificate	**: Directive 2004/22/CE (MID)**
Ex-Proof according to	**: ATEX 2014/34/EU**
Measured Liquid	**: LNG**

Built-in Pumping Measuring Unit Description

Type of Measuring System	**: Coriolis mass flow meter for LNG**
Cryogenic filling/return hoses	**: 4 m**
Screen	**: 15” EX prove screen**
Design Pressure	**: 22 Bar**
Design Flowrate	**: 10 to 90 kg/min**
System design Temperature	**: -196 to 50 °C**

Details of the Main System Components

Electronic Description

Directive	**: ATEX**
Marking	**: CE Ex II 2G IIA T1**
Additional Safety Equipment	**: Ex-Zones 1,2**
Water / Dust Protection	**: Electronic section : IP54**
Flowmeter section	**: IP66**
Mass Flow Accuracy	**: 1,5 ± % of rate**
	Electronic Design Code
Mechanical Environmental Class	**: M1**
Electromechanical Environmental	**: Class E1**
Humidity Class	**: H3**
Design Wind Loading	**: 120 Km/h**
Earthquake Zone	**: Eurocode 8**
Power Supply	**: 380 V / 3x40 A**

Details of the Main System Components- Fuelling parameters

Operating Mass Flow Rate		
Flowrate, Min.	15	kg/min
Flowrate, Nominal	63	kg/min
Flowrate, Max.	90	kg/min

Operating Fueling Pressure		
Pressure, Min.	3	Barg
Pressure, Nominal	12	Barg
Pressure, Max.	16	Barg

Operating Temperature		
Temperature, Min.	- 196	°C
Temperature, Max.	- 108	°C

Operating Density		
Density, Min.	310	kg/m³
Density, Max.	850	kg/m³

Details of the Main System Components – Cryogenic Submerge Pump

ACD TC 34 Motor Data

Frequency	: **50 Hz**
Rated voltage	: **380 V**
Nominal speed	: **5590 rpm**
Number of poles	: **2**
Rated power	: **12,6 kW**
Service factor	: **1**
Motor type	: **3~**
Design standard	: **NEMA**
Degree of protection	: **IP 54**
Impeller Ø	: **152,40 mm**
Shaft seal	: **Vertical Seal Less**

Operating Values

Rated flow	: **150 l/min**
Differential Head	: **113,2 m**
Shaft power	: **2,28 kW**
Pump efficiency	: **51,5 %**
Required NPSH	: **0,5 m**
Pump speed	: **4.132 rpm**

Details of the Main System Components – Storage tank

Design Features		Parameters	
Manufactured according	: **EN 13458-2 Cryogenic Vessel Standard, PED, CE Marked**	Built in size	: **20.000 l**
Inner Vessel Material	: **304L Stainless Steel**	MAWP	: **10 bar**
Outer Vessel Material	: **ST-52 Carbon Steel**	Length	: **10.335 mm**
Medium	: **LNG**	Highness	: **2550 mm**
Insulation Type	: **Perlite + Vacuum**	Diameter	: **2450 mm**
		Try-cock	: **5 %**

Details of the Main System Components – LNG Conditioner System

Most of the LNG powered vehicles on the market today require a minimum pressure in their fuel tank. In case of colder LNG in the tank of the filling-station a highly precise LNG Conditioner System need to act and maintain the cryogenic fluid to avoid the system from too cold fuelling.

The high pressure ambient heat exchanger system is sensible actuated by the computer system managed pneumatic valves to keep the temperature of the fuel in a narrow range.

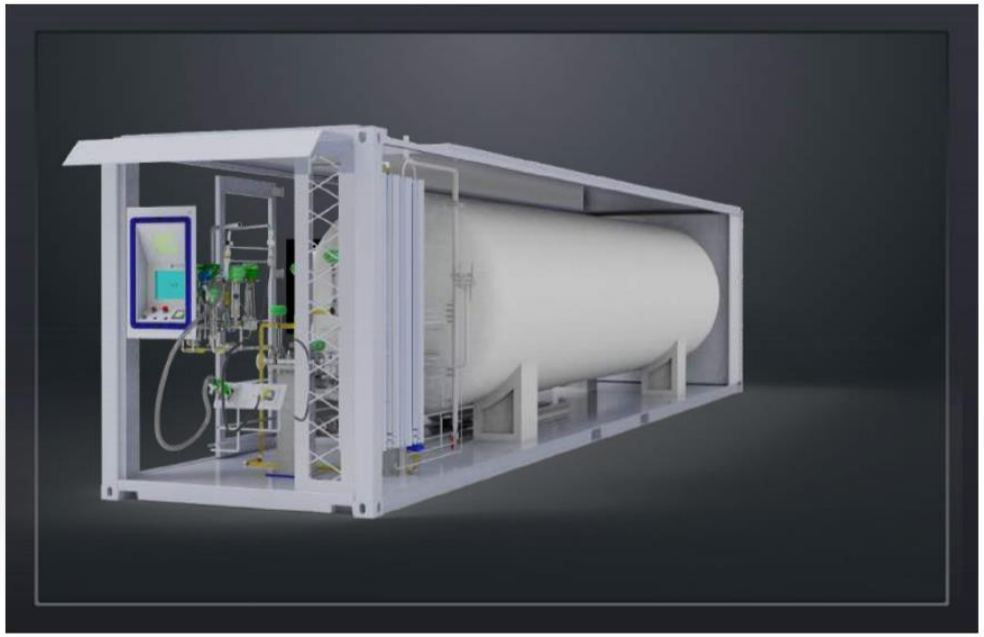
This system also can provide the coldest possible fuel for the vehicles, which are equipped with HPDI fuel injection system on board and secure the best fuel-per-volume ratio.

Details of the Main System Components – Automation & Telemetry

Automation Control Panel built-in for control the installed cryogenic equipment and processes.

Control the complete LNG refuelling system including the measuring system, valves and the pump.

Handling all the required safety solutions; alarms, emergency events, leakage shut offs, failure situations.



Automation Control Panel includes:

- Operator touch-screen display panel
- Universal PLC
- General main switch and emergency stop button
- Intrinsically safe barriers for the signals coming from the site, certified
- Manual control on panel
- Working-hour counter
- Push button (i.e. start / stop pump - alarm reset - lamp test)
- Inverter to control the submerged pump
- Online UPS

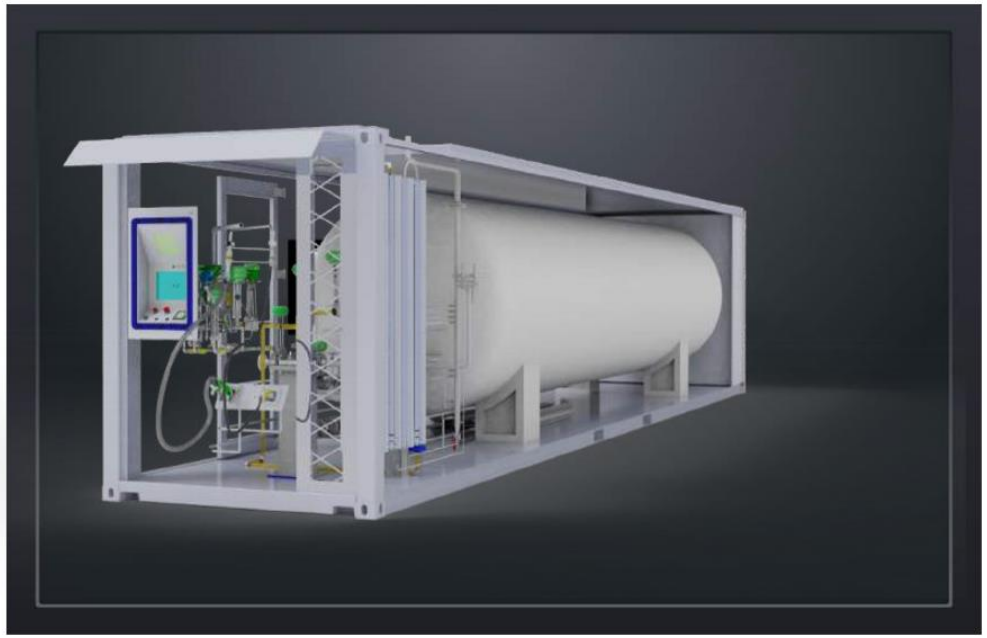
Details of the Main System Components – Automation & Telemetry

Remote availability:

The system can be reached remotely from dispatcher centre or by the maintenance provider, through IP remote connection, this feature included into the Automation Control Panel.

Remotely receives notifications from any Alarms coming from the site.

Dispatcher works supported by high resolution camera views



Features of the Automation Control Panel:

- See the status of the pump
- Choose the working mode
- Choose the different parameters
- Verify the values of the sensors and instruments

The control panel integrates also the gas detection system; in order to determine hazardous locations and to trigger safety related measures automatically in case of alarm, such as visible and/ or audible alarms and switching off equipment.

Certification and Documentation

All engineering equipment comply to following EU directives, where applicable;

- 2014/68/UE PED Directive
- 2006/42/EC Machinery Directive
- 2014/30/UE Directive - Electromagnetic Compatibility (EMC)
- 2014/35/UE Low Voltage Directive
- 2014/34/UE Directive – ATEX
- 2014/32/EU- Measuring Instrument Directive (MID)

After purchase order the factory provided technical documentations allow easy and fast track permission request.

Completely factory tested equipment ensure the rapid and safe commissioning without time loss.

YeS Charging System

THANK YOU

Благодаря

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