

Fuel Gas Systems

Natural gas as a clean and environment-friendly fuel is of growing importance to the marine propulsion industry. Engines are available in a broad range of capacities with different engine technologies (2-stroke, 4-stroke, Otto- or Diesel-process) requiring different gas supply systems.

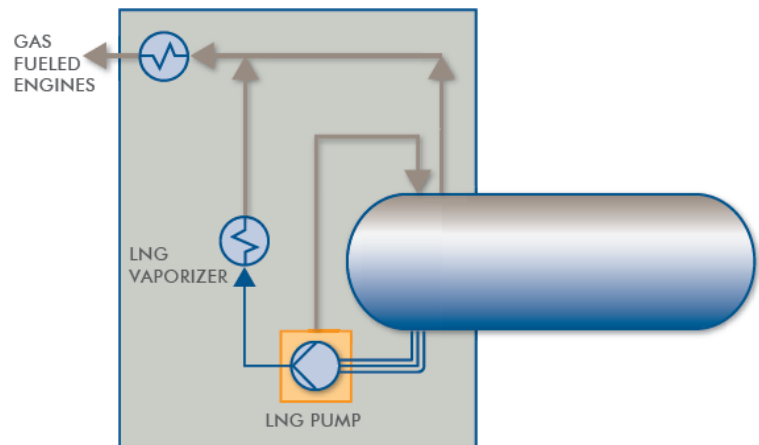
TGE Marine offers tailor-made LNG fuel gas systems for all types and sizes of engines. Our services and supplies cover the complete onboard system comprising storage, handling and processing of LNG from the bunker station to the fuel gas master valve at the engine, including control, safety and auxiliary systems.

Technology

Type Low Pressure

Vacuum insulated tank

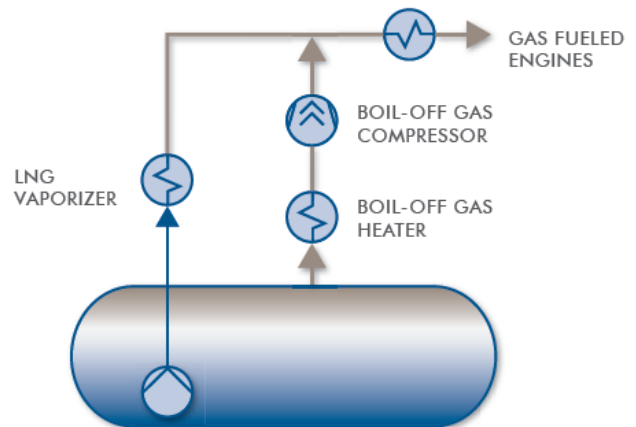
- Vacuum insulated tank
- Stainless steel box for process equipment welded to tank
- LNG pump in suction vessel
- Bottom outlet to fuel gas pump with double-wall piping
- Tank design pressure 10 bar g for easy BOG handling at low pressure 4-stroke engines
- Gas to engine:
5 bar g to 16 bar g



Type Low Pressure

Foam insulated tank

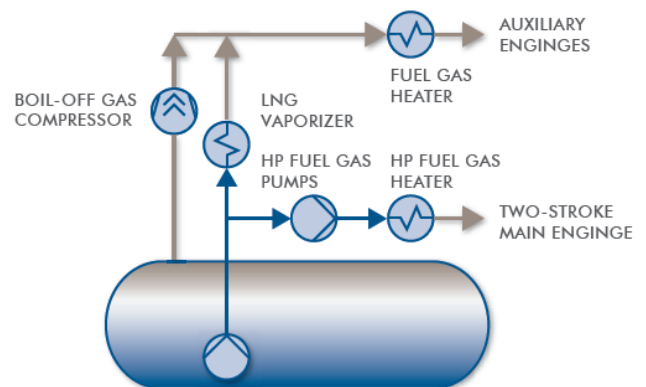
- Foam insulated type C tank
- No bottom outlet
- Submerged fuel gas pump
- BOG compressor for easy BOG handling
- Tank design pressure 4 bar g
- Gas to engine:
5 bar g to 16 bar g



High Pressure

Fuel Gas System

- Foam insulated type C tank
- No bottom outlet
- Submerged fuel gas pump, high pressure pump
- BOG compressor for easy BOG handling
- Tank design pressure 4 bar g
- Gas to engine:
up to 350 bar g (LNG)
up to 400 bar g (Ethane)



References

New semi submersible crane vessel:

- Owner: Heerema, The Netherlands
- Yard: Sembcorp Marine, Singapore
- Classification: LR
- Completion: 2019 (under construction)
- Scope: Low pressure fuel gas system for 4-stroke dual fuel engines with eight vertical foam insulated tanks and four parallel fuel gas processing trains



1,000 TEU Container vessel:

- Owner: Wessels, Germany
- Yard: German Drydocks (conversion to gas)
- Classification: BV
- Completion: 2017
- Scope: Fuel gas system with 480 m³ foam insulated tank



124,000 GT Cruise vessel:

- Owner: AIDA, Germany
- Yard: Mitsubishi Heavy Industries, Japan
- Classification: DNV-GL
- Completion: 2016 / 2017
- Scope: Fuel gas system for LNG supply by truck in harbor



3,800 Pure car carrier:

- Owner: UECC, Norway
- Yard: Nantong Cosco Kawasaki Shipyard, China
- Classification: LR
- Completion: 2016
- Scope: High pressure fuel gas system with 760 m³ foam insulated tank



1,400 TEU Container Vessel:

- Owner: Containerships, Finland
- Yard: Guangzhou Wenchong Shipyard, China
- Classification: ABS
- Completion: 2018 (under construction)
- Scope: LNG fuel tanks (foam insulated) and low pressure fuel gas system for WinGD two-stroke dual fuel main engine and four-stroke auxiliary engine



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