



STUBITEC

STUBITEC PROGRAM

75 - LNG

2015



2015-LNG-1455

LNG FUEL GAS SYSTEM ON SHIPS.

ST and STUBITEC BV delivers LNG fuel gas systems for Propulsion ABC dual fuel Gas engines for our Escort Tug type ET1541. The LNG fuel gas system conditions the LNG into a gas suitable for the actual ABC gas engines.

-LNG as Marine Fuel :

LNG stands for Liquefied Natural Gas .

LNG consists primarily of methane with some Ethane , Gas/Liquid ratio 600 : 1, and operator can save abt.15% on running costs.

At very low (cryogenic) temperatures of about minus (-) 162 degr.C, under normal atmospheric pressure of methane is liquefied.

In the liquid state the volume of LNG is about 600 times smaller than that of natural gas under normal conditions .

Depending on the temperature ,pressure and composition the density of LNG about 0,41-0,48 kg/liter (Density of water is 1,0 kg/Liter).

LNG used as fuel for ships ABC- Gas engines is the best choice as far as the emissions of CO₂ /SO_x and NO_x are concerned.

LNG is a cheap fuel and can meet the Marpol Tier 3 requirements on emissions.

The LNG Fuel Gas System consists of the following items :

- 01)- Dual Fuel Engine , 4pc . installed .
- 02)-Alternator , 4pc flexible coupled to flywheel of Engines.
- 03)-Gas Valve Unit ,
- 04)-Hard piping , double-hull tubing , DN50 make AISI316L.
- 05)-Over Pressure Regulator .
- 06)-Ventline from Reservoir .
- 07)-Heat Exchanger inside FGU.
- 08)-Glycol-Water skid.
- 09)- Fuel Gas Unit , = FGU or Coldbox.
(purpose to withdraw LNG from the LNG reservoir , re-gasify this LNG towards gas at the right pressure and up to maximum guaranteed flow.
- 10)-Fuel level gauge .
- 11)-LNG Dispenser
- 12)-Bridge Control Panel .
- 13)-Compressor , min. 20Nm³/5-8,5 barg.
- 14)-Filling station(s) at PS & SB , Coupling EIGA65 or Parker-Kodiak.
- 15)-LNG Fuel-Reservoir ,tailor made , Vertical or Horizontal mounted.
-Twin hull ,Perlite with vacuum Insulated. Type CRYST40 -50-60-80-100m³.
-Design acc. DNV /LRS , EN 13445 ,mat. Duplex ,Regulations D97/23/EC ,CE-Marking.
-Volume is based on speed(s) and number of operating hours ,net



volume is 95% of brut volume.

-Pressures min. 5-10 barg , design medium temp. -196 degr.C

-Acceleration loads , vertically 2G ,horizontally 1G.

-Hatch at top with Penetrators and Clamp.

16)-The LNG fuel reservoir will be designed to be lifted into Tug hull with a top-hatch included.

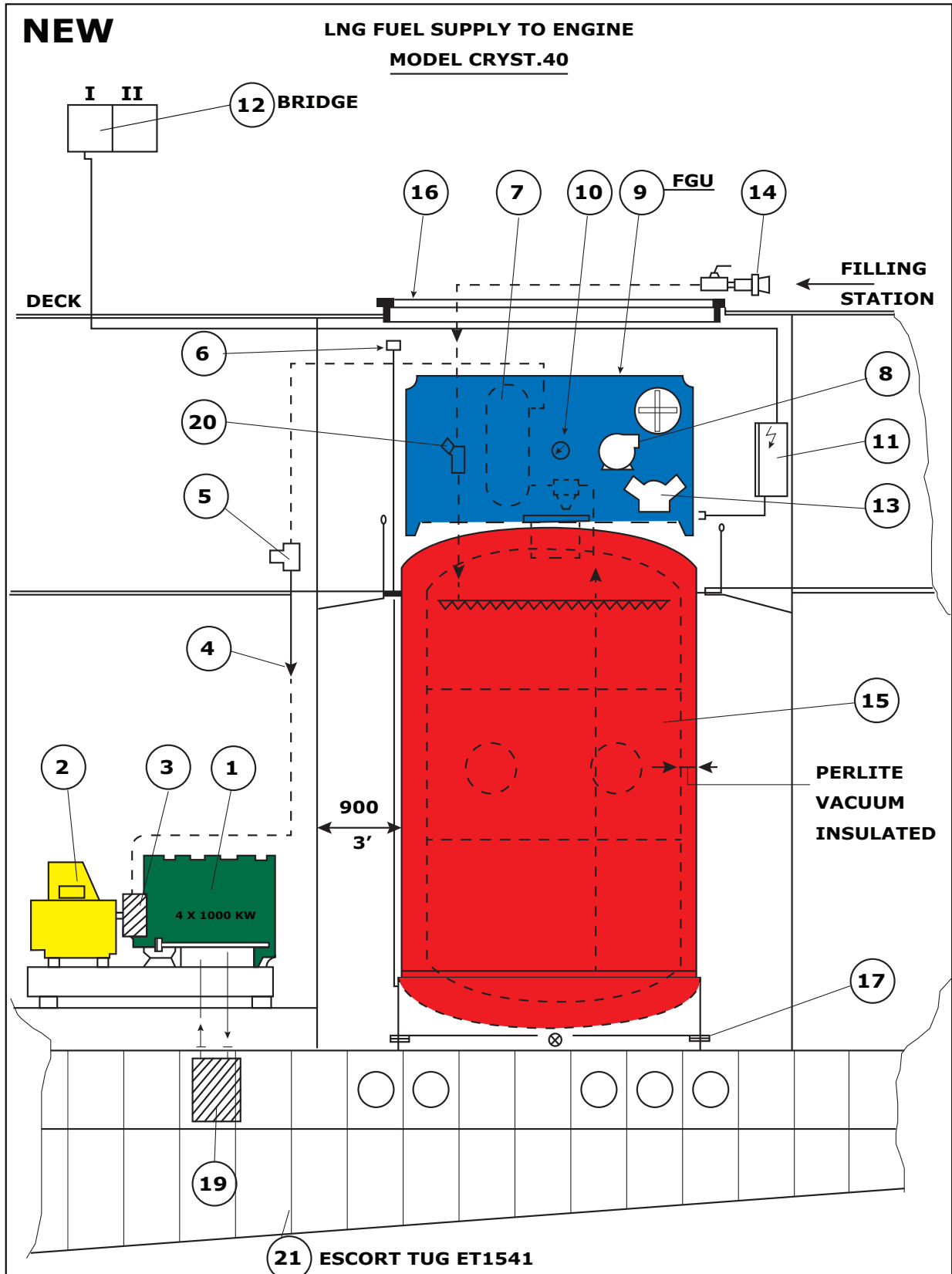
17)-Deck pads for Legs or Skirt provided with Rubber pads.

18)-MDB + required Safety functions.

19)-Box coolers ,made Cunifer 90/10.

20)-Non Return Valve.

21)-Escort Tug , Stubitec type ET1541.



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