Standard Modular LNG tank container concept

Gas supply system with LNG fuel tank containers





Introduction & Project Scope

Purpose of project:

- Development of standard modular LNG ISO Tank container based LNG fuel system (for Inland, Fishery and Short Sea, so-called "Small Scale LNG")
- Reduction of costs, easiness of installation
- LNG Tank container also to be suitable for use as regular LNG transport to facilitate Lease concepts i.e. reduced Capex for Ship Owners













Introduction & Project Scope

Project deliverables

- Feasibility study of the LNG (Fuel/ transport) Tank container different modules and selection tool
- Construction of prototype LNG Tank Container & testing

Optional

• System "Approval in principle" by Classification society.













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Standard modular LNG tank container concept

Evaporator skid

Preparation of the LNG (evaporation and heating) to meet the gas requirements to the engine

Automation

Complete automation and safety system for the gas supply system

Gas to GVU(s) / engines



Vent mast

Common outlets from safety relief/vent valves in the docking station and the evaporator skid shall be connected to a vent mast.

LNG fuel tank containers

Standard ISO frame dimensions





Glycol-water skid

Supplies glycol-water to the evaporator skid for evaporation and heating of the LNG/gas. Uses LTwater as heating media





Tank container comparison

	LNG fuel tank container	Standard ISO tank container
Standard ISO frame	*	×
Compliance with transportation regulations (IMDG, ADR, RID, CSC among others)	V	×.
Compliance with rules for use as LNG fuel tank on board ships:	×	-
IMO Type-C tank	*	-
Water spraying system (optional on ship)	*	-
Connection to external vent mast	\checkmark	-
LNG leakage detection and protection	*	-
Class approved equipment & design	\checkmark	-
Stainless steel outer shell	*	-
Dry disconnect quick couplings	*	-
Connections at end for connecting to ship	*	-
Connection to automation system on the ship	\checkmark	-
Connection to safety systems on the ship	V	-









LNG fuel tank container characteristics

LNG fuel tank container		20 ft	40 ft	45 ft	
Frame dimensions (external)					
Length	m	6.058	12.192	13.716	
Width	m	2.438	2.438	2.438	
Height	m	2.591	2.591	2.896	
Tank					
Geometrical volume (approx, room temp.)	m³	21.5	40	45	
LNG volume (80 % effective volume)	m ³	17	32	36	
Tare weight (approx.)	kg	9 000	16 400	18 600	
Max weight (approx.)	kg	15 200	34 000	34 000	







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Current status

- Documents sent for approval to Lloyd's Shipping July 2018
- Heads + shells in Cryovat workshop
- Production of container launched
- First Lloyd's inspection coming up this month
- HAZID study on standard modular LNG tank container concept













Thank you & questions



4 x 46 m3 Rederij Doeksen



37 m3



90 m3



370 m3



