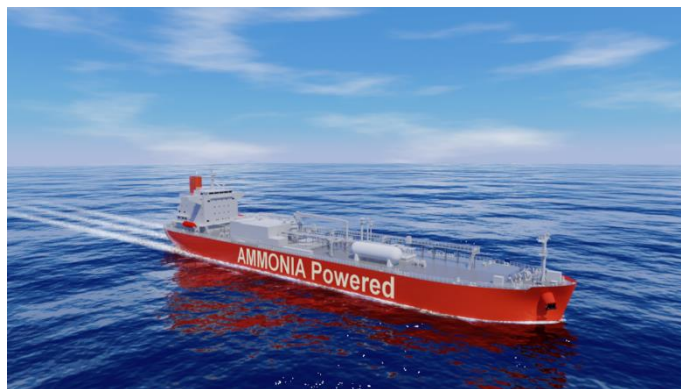


April 14, 2023

Mitsui E&S Shipbuilding Co., Ltd.
Mitsui O.S.K. Lines, Ltd.
TSUNEISHI SHIPBUILDING Co., Ltd.

MES-S, MOL, and TSUNEISHI Acquire AiP for Ammonia-fueled Vessel from ClassNK and Lloyd's

Mitsui E&S Shipbuilding Co., Ltd. (MES-S; President: Yasunori Kohatake; Headquarters: Chuo-ku, Tokyo), Mitsui O.S.K. Lines, Ltd. (MOL; President & CEO: Takeshi Hashimoto; Headquarters: Minato-ku, Tokyo), and TSUNEISHI SHIPBUILDING Co., Ltd. (TSUNEISHI; President: Sachio Okumura; Headquarters: Fukuyama-shi, Hiroshima Prefecture) today announced that they have conducted risk assessments of their jointly developed, ammonia-fueled ocean-going liquefied gas carrier^(Note 1), and on April 10, received Approval in Principle (AiP) for the vessel from Nippon Kaiji Kyokai (ClassNK; Headquarters: Chiyoda-ku, Tokyo) and Lloyd's Register of Shipping (Headquarters: the U.K.). This is the first case ever that two classes AiP, ClassNK and Lloyd's, have been issued.



CG rendering of an ocean-going liquefied gas carrier



AiP Certificate Presentation Ceremony

The vessel is a mid-size ammonia/LPG carrier equipped with a main engine that can run on ammonia ^(Note 2), which emits no CO₂ during combustion. The vessel uses some of the ammonia loaded as cargo as fuel, with the aim of achieving net-zero CO₂ emissions while underway.

Ammonia is expected to be a next-generation clean energy source, but special measures are needed to ensure sufficient safety against its characteristics of flammability, toxicity, and corrosiveness. In addition, there are currently no international regulations on the use of ammonia as a marine fuel. Therefore, the three companies conducted hazard identification studies (HAZID) ^(Note 3) with ClassNK and Lloyd's, respectively, which have in-depth knowledge on ship safety and guidelines for ammonia-fueled vessels. As a result of the risk assessment of using ammonia as marine fuel from multiple perspectives, both classification societies recognized the safety of the vessel's basic design.

Leveraging the knowledge gained from these risk assessments and AiP acquisition, the three companies will move ahead with the design of the vessel, which will be a net-zero emission ocean-going vessel, with an eye toward delivery around 2026.

Anticipating an increase in the need for ammonia as a marine fuel and greater demand for transporting it, the three companies are committed to playing a role in society's overall decarbonization efforts by providing clean ocean transport solutions with the zero emission ocean-going vessels.

(Note 1) Related press release

June 24, 2022: [Mitsui E&S Shipbuilding, Mitsui O.S.K. Lines, and Tsuneishi Shipbuilding Start Joint Development on Net Zero Emission Ammonia-fueled Ocean-going Liquefied Gas Carrier](#)

(Note 2) Related press release

October 18, 2021: [MOL, MAN ES and MES-M Sign Memorandum of Understanding aiming to order Ammonia Fueled Main Engine for Ships](#)

(Note 3) HAZID addresses risk assessment and management to ensure that a system as a whole is sufficiently safe based on discussions among experts regarding the magnitude and frequency of potential hazards in the system.

[Outline of the vessel]

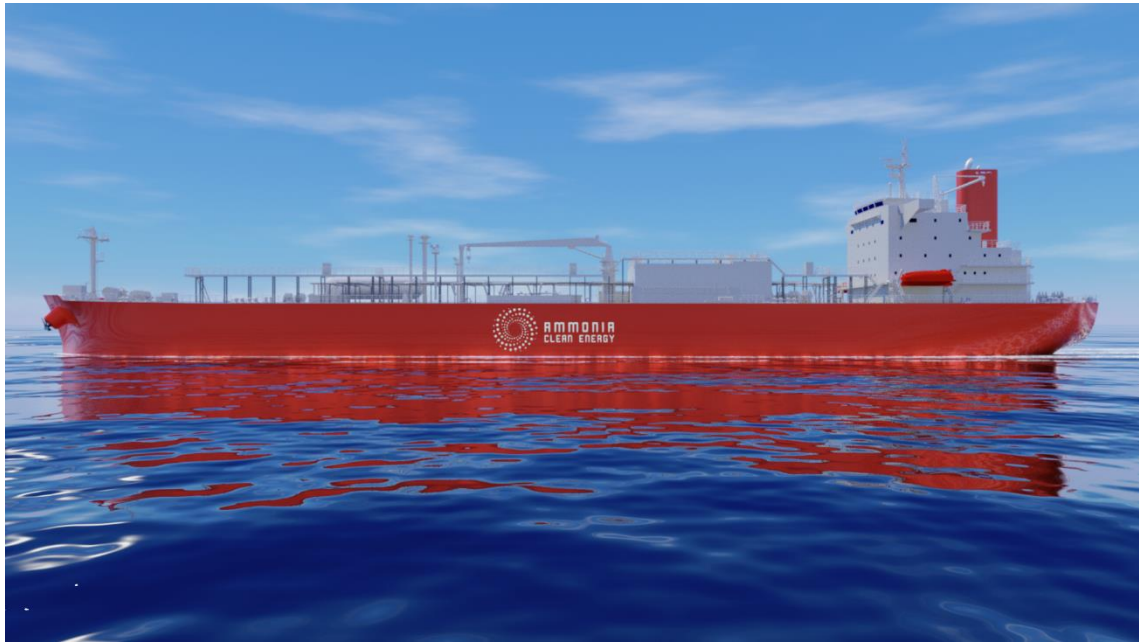
LOA: About 180m

Breadth: About 30m

Depth: About 19m

Cargo tank capacity: About 40,000m³

Main engine: Mitsui-MAN B&W type S60 two-stroke dual-fuel ammonia engine (under development)



CG rendering of an ocean-going liquefied gas carrier

[Outline of three companies]

Mitsui E&S Shipbuilding Co., Ltd.

Established: May 2017 (Founded in November 1917)

Address of headquarters: 5-6-4 Tsukiji, Chuo-ku, Tokyo

Representative: President: Yasunori Kohatake

Business: Ship Design & Engineering, Technical Consulting / Drawing Supply, Dispatch of Engineer, Ship Digitalization, Sales of Dual Fuel Supply System, Brokerage Service, etc.

Mitsui O.S.K. Lines, Ltd.

Established: May 1884

Address of headquarters: 2-1-1 Toranomom, Minato-ku, Tokyo

Representative: President & CEO: Takeshi Hashimoto

Business: Ocean shipping, etc.

TSUNEISHI SHIPBUILDING Co., Ltd.

Established: January 2011 (Founded in July 1917)

Address of headquarters: 1083 Tsuneishi, Numakuma-cho, Fukuyama-shi, Hiroshima

Representative: President: Sachio Okumura

Business: Construction and repair of vessels

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