

PRESSRELEASE

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HHI, Hyundai Glovis, Liberian Registry and KR Develop Worlds First Large Size Commercial Hydrogen Carrier

Hyundai Heavy Industries Group, Hyundai Glovis, the Liberian Registry, the Korean Register and their partners have successfully developed the world's first Large Size and commercially viable liquified hydrogen carrier.

On October 22nd, HHI Group's Korea Shipbuilding & Offshore Engineering (KSOE) and Hyundai Mipo Dockyard (HMD) announced that they have received the necessary Approval in Principle (AIP) for a 20,000 cubic meters class liquefied hydrogen carrier from the Liberian Registry as flag State and Korean Register as Class Society. This ship design is the world's first large size liquefied hydrogen carrier.

Alfonso Castellero, Chief Operating Officer of the Liberian International Ship and Corporate Registry (LISCR) states, "It is meaningful to participate in this joint industry project (JIP) of hydrogen carriers from the standpoint of a flag State with a long history and technical verification capability. As a flag State, our technical department has taken a very close look at the safety and regulatory aspects of the design and its implementation. We are very pleased to be working with these wonderful partners on this, and we appreciate the wonderful cooperation with HHI Group, Hyundai Glovis, KR and the entire team."

The key elements of this ground breaking JIP are the KSOE developed liquefied hydrogen cargo treatment system and a hydrogen boil off gas (BOG) treatment system using fuel cells. HMD advanced the basic design of the ship. Hyundai Glovis and G-Marine Service analyzed the economics and safety of liquefied hydrogen during storage and transportation.

An official from Hyundai Heavy Industries Group said, "It is meaningful in that shipbuilding and shipping companies have cooperated to secure the growth engine of the future hydrogen economy era," and "We will actively pioneer overseas large-capacity hydrogen transportation market based on advanced technology".

According to the 'Hydrogen, Scaling Up' Report released in 2017 by the Hydrogen Council, the global hydrogen market is expected to grow to \$2.5 trillion by 2050, accounting for 18% of the total energy demand. Accordingly, the Korean government also announced the 'Road Map for Activating the Hydrogen Economy' last year, and is spurring the revitalization of the hydrogen economy in various industries such as shipbuilding, automobiles and batteries.

This ship design is characterized by the use of a double-structured vacuum insulated tank to improve insulation and minimize hydrogen BOG generated during operation. In addition, by adopting an electric propulsion system, hydrogen BOG can be used as fuel for fuel cells in the future.

In order to transport a large amount of hydrogen by ship, a liquefaction process that reduces the volume to 1/800 and increases stability is essential. Since hydrogen liquefies at a cryogenic temperature of -253°C, which is lower than LNG that liquefies at -163°C, a liquefied hydrogen carrier needs advanced cryogenic technology to stably preserve it.

- The Liberian Registry has a long-established track record of combining the highest standards of safety for vessels, and crews with innovative service delivery. Moreover, it has a well-deserved reputation for supporting international legislation designed to maintain and improve the safety and effectiveness of the shipping industry and protection of the marine environment. www.liscr.com

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