3rd December 2025

Nihon Shipyard Co., Ltd.

Approval in Principle (AiP) Acquired from Two Classification Societies for Spray type Insulation system for Type B LNG and Ammonia Fuel Tank.

A joint venture for ship design and sales between Imabari Shipbuilding Co., Ltd. and Japan Marine United Corporation, Nihon Shipyard Co., Ltd.(NSY) Japan and Hankuk Carbon Co., Ltd. (Hankuk) Republic of Korea

has successfully conducted a demonstration mock-up test of a spray-type insulation system for Type B LNG and Ammonia fuel tanks. Following the test, the companies were granted Approval in Principle (AiP) by Lloyd's Register (LR) and Nippon Kaiji Kyokai (ClassNK).

A presentation ceremony took place on 2nd December 2025 at the NSY Headquarters in Hibiya Marine Building.

From left Seiji Hamanaka from LR、Tomoaki Takahira from NSY、Cho Moonsoo from HC

From left Masaki Matsunaga from NK、Tomoaki Takahira from NSY、Cho Moonsoo from HC

Decarbonization and New Solutions in the Shipbuilding Industry

As the global shipbuilding industry prioritizes decarbonization, the design and construction of eco-friendly vessels using alternative fuels have emerged as a core solution. Among these, LNG-fueled ships hold a key position, driving advancements in the associated fuel tank technology.

Traditionally, Type C tanks have been the mainstream choice due to their production and cost efficiency. However, for the large-capacity fuel tanks required on large container ships and more for ammonia fueled vessels., Type C tanks are not always the optimal solution in terms of vessel arrangement and cargo capacity. To overcome these limitations, NSY has focused on **Type B tanks** as a powerful alternative.

The Emergence of an Innovative Spray Insulation System

Conventional insulation systems for Type B tanks have predominantly been panel-based. This method presented challenges in accuracy quality control and shortening construction time.

The new spray-type insulation system jointly developed by NSY and Hankuk Carbon dramatically improves upon these issues. By spraying foam to the tank structure, it allows for uniform and precise application even on complex shapes. This method is expected to **improve efficiency by over 20%** compared to the conventional panel system, leading to shorter shipbuilding times and enhanced cost competitiveness. Moreover, the use of eco-friendly spray foam is expected to effectively meet the growing demand from shipowners for environmentally sustainable vessels.

Sailing Towards a Sustainable Future

Hankuk Carbon Co., Ltd. Founded in 1984 has been at the forefront of Korea's composite materials industry, introducing carbon fiber to the market for the first time and pioneering prepregs that combine carbon fiber with advanced polymer resins.

The company's businesses span three major divisions: Carbon (sports and leisure materials), LNG (insulation systems and components for LNG storage and transport), and Glass Paper (flooring and architectural applications).

Building on this foundation, Hankuk Carbon is accelerating its expansion into future growth sectors, including aerospace and automotive materials and the development of unmanned aerial vehicles (UAVs) — reinforcing its vision to lead innovation in mobility and energy solutions worldwide.

NSY has already successfully delivered various eco-friendly vessels powered by new fuels like LNG and methanol, and is currently constructing and planning ammonia-fueled vessels.

This Approval in Principle is a formal recognition of the technological prowess and innovation of both our companies. We will continue to collaborate with outstanding partners like Hankuk Carbon to actively develop technologies that reduce environmental impact and contribute to a sustainable society by supplying eco-friendly ships to the market.