

Press Information

April 7, 2025

Nikkiso has received an order for a pump unit of hydrogen-fueled ships

Tokyo—Nikkiso Co., Ltd.(Nikkiso) announced today it has received an order from Kawasaki Heavy Industries, Ltd.(Kawasaki) for a pump unit of hydrogen-fueled ships that use hydrogen as fuel. The pump unit will be designed and manufactured by combining the technologies of products for LNG-fueled ships and hydrogen stations. This is scheduled for delivery in 2026.

The hydrogen-fueled ship in which this pump unit will be installed equips a low speed two-stroke hydrogen-dual fueled engine as the main propulsion engine. This is the first ship in the world to obtain Approval in Principle (AiP) from Nippon Kaiji Kyokai (ClassNK) for a ship with the same type of engine as its main propulsion engine. This project to develop the world's first hydrogen-fueled ship is part of the project "Development of marine hydrogen engines and MHFS(*1)" which was adopted by "Green Innovation(GI) Fund (*2) / Next-generation Ship Development" of the New Energy and Industrial Technology Development Organization (NEDO).

*1 MHFS : Marine Hydrogen Fuel Tank and Fuel Supply System

*2 The projects of GI Fund support companies working on management issues toward "carbon neutrality by 2050," for R&D, demonstrations, and social implementation projects for up to 10 years. It covers 14 sectors, Energy related industries including hydrogen and fuel ammonia industry, Transport/manufacturing industries, and Home/Office related industries.

■ Overview of the Project

In response to the need to reduce greenhouse gas (GHG) emissions in the shipping sector, Kawasaki and two other companies proposed this project to NEDO's GI Fund, which was adopted in October 2021.

In this project, the three companies are simultaneously developing marine hydrogen-fueled engines with different power ranges and applications, and Kawasaki is also responsible for the development of the MHFS. The ship with a low speed two-stroke hydrogen-fueled engine is scheduled to begin demonstration operation in 2028

■ About the pump unit

The pump unit on order from Kawasaki is a key component of the MHFS that supplies high-pressure hydrogen to a low speed two-stroke hydrogen-fueled engine. This pump unit, which combines multiple types of pumps, is used to boost the pressure required by the engine in the

process of supplying liquefied hydrogen from the hydrogen fuel tank to the evaporator.

The design and manufacturing are being carried out by the Clean Energy & Industrial Gases Group (CE&IG Group, California, USA), part of Nikkiso's Industrial division. CE&IG Group is one of the few manufacturers in the world that has strengths in both high-pressure fuel supply systems for LNG-fueled ships and products for hydrogen stations.

CE&IG Group has a proven track record in high-pressure fuel supply systems for LNG-fueled ships. Thanks to its work in fuel supply stations, CE&IG Group has experience transferring technology from LNG to hydrogen. Similarly, it will design and manufacture pump units for hydrogen-fueled ships by applying the technology of high-pressure fuel supply systems for LNG-fueled ships.

Nikkiso will contribute to achieving carbon neutrality in international shipping by providing pump units for hydrogen-fueled ships.

< Appendix : Trends regarding decarbonization in the shipping sector >

As of 2018, international shipping accounts for approximately 2.1% of global CO2 emissions. If no action is taken, CO2 emissions from the shipping sector will also continue to increase. Therefore, the Japanese government announced in 2021 that Japan aimed to achieve net-zero GHG emissions from international shipping by 2050. In 2023, International Maritime Organization (IMO) adopted "2023 IMO Strategy on Reduction of GHG Emissions from Ships". To achieve carbon neutrality in the shipping sector, it is essential to move away from existing heavy oil-based fuels to sustainable and carbon-neutral gas fuels such as hydrogen, ammonia and so on.

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Date of Establishment:	December 26, 1953
Representative Director President & CEO:	Koichi Kato
Business Overview:	Nikkiso provides specialized pumps and systems in the Industrial Business, CFRP (carbon fiber reinforced plastic) aircraft parts in the Aerospace Business and hemodialysis related products in the Medical Business.
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