



YANMAR

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Yanmar Holdings Co., Ltd.

News Release

Yanmar Conducts World's First 70 MPa High-Pressure Ship Refueling with Hydrogen



Hydrogen fuel cell demonstration test boat cruising in Osaka Bay

October 20th, 2021, (Osaka, Japan) – Yanmar Power Technology (YPT), a Group company of Yanmar Holdings Co., Ltd., has conducted the world's first 70 MPa high-pressure hydrogen refueling of a ship using a demonstration test boat equipped with a hydrogen fuel cell system. The test boat cruised on a route around the planned island of the Osaka-Kansai World Exposition 2025 and famous tourist spots on the city's coast.

The 70 MPa high-pressure hydrogen refueling was carried out in cooperation with Toyota Tsusho Corporation, using specially licensed high-pressure facility and a newly developed prototype long hydrogen refueling hose. The 70MPa high-pressure refueling resulted in more than three times longer cruising time compared to the previous refueling process. The results will be utilized for the market deployment of hydrogen fuel cell systems as well as the study

of hydrogen refueling infrastructure for ships.

YPT is developing a 300kW-class maritime fuel cell system incorporating fuel cell modules supplied by Toyota Motor Corporation, addressing the potential customer demands such as ones relating to the Carbon-Neutral Port concept of the Ministry of Land, Infrastructure, Transport and Tourism. Yanmar aims to obtain a type approval from classification societies so that the system can be installed in various types of ships with global customers towards a planned launch to market in 2023.



70 MPa high-pressure hydrogen refueling demonstration test



Image of the 300kW-class maritime hydrogen fuel cell system

About Yanmar

With beginnings in Osaka, Japan, in 1912, Yanmar was the first ever to succeed in making a compact diesel engine of a practical size in 1933. A pioneer in diesel engine technology, Yanmar is a global innovator in a wide range of industrial equipment, from small and large engines, agricultural machinery and facilities, construction equipment, energy systems, marine, to machine tools, and components — Yanmar's global business operations span seven domains. On land, at sea, and in the city, Yanmar provides advanced solutions to the challenges customers face, towards realizing A Sustainable Future.

For more details, please visit the official website of Yanmar Holdings Co., Ltd.

<https://www.yanmar.com/global/about/>

<NOTE>

The contents of this news release reflect what was mentioned in the press announcement. Please be aware that the contents of this release may differ with new information and developments.

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