



YANMAR

News Release

March 24, 2021

Yanmar Holdings Co., Ltd.

Yanmar Conducts Field Demonstration Test for Maritime Hydrogen Fuel Cell System

OSAKA, Japan (March 24, 2021), Yanmar Holdings Co., Ltd. and its subsidiary Yanmar Power Technology Co., Ltd. have conducted a field demonstration test for the maritime fuel cell system on March 24, in Oita, Japan.



Demonstration test boat with maritime fuel cell system

The International Maritime Organization has announced a strategy to reduce greenhouse gas emissions to zero by the end of this century. With marine environmental regulations tightening worldwide, in December last year, the Japanese Ministry of Economy, Trade and Industry formulated its “Green Growth Strategy towards 2050 Carbon Neutrality”. The strategy highlights the development of energy and power sources that reduce the impact on the environment, including those for vessels powered by carbon free fuels such as hydrogen and ammonia.

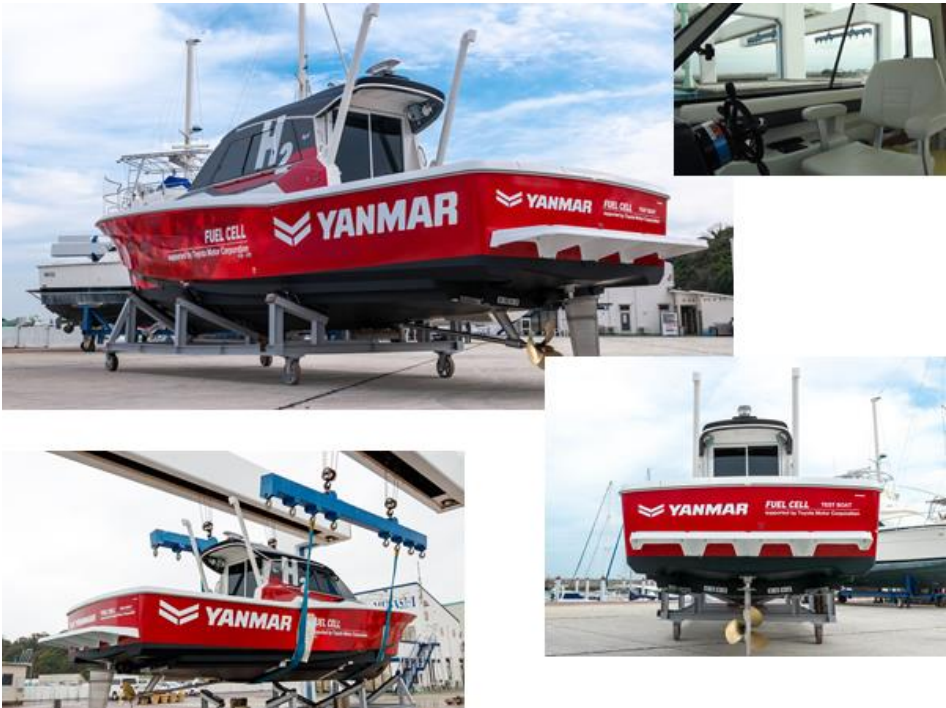
A global leader in maritime powertrain technology, Yanmar was among the first companies to comply with environmental regulations with its development of dual-fuel marine engines. Looking to the future of

powertrain technology, Yanmar has developed a maritime fuel cell system that incorporates hydrogen fuel cell modules from Toyota's MIRAI automobile. The system was installed into Yanmar's EX38A FC pleasure boat for field testing.

The boat is the first to officially comply with the safety guidelines for hydrogen fuel cell vessels formulated by the Ministry of Land, Infrastructure, Transport and Tourism in Japan. Yanmar aims to verify specific issues and solutions in a maritime environment for deployment of the maritime fuel cell system. Looking to the future, Yanmar has plans to scale the maritime fuel cell system by connecting multiple units. The system is planned to be deployed to larger vessels by 2025.

■ Demonstration test boat specifications

- Model : EX38A(FC prototype)
- Weight : 7.9 t
- Length/Beam : 12.4 m / 3.4 m
- Power : 250 kW
- Fuel Cell Type : Polymer Electrolyte Fuel Cell x 2 modules
- Hydrogen tank : 70M Pa x 8 tanks
- Inspection body : Japan Craft Inspection Organization
- Test Location : Kunisaki, Oita, Japan



About Yanmar

Founded 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/>

<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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