MIURA CO., LTD.

Issued June 18, 2025

Test Facility for Marine Boilers Equipped with Ammonia DF Burners[*1] Completed
- Working to Decarbonize the Shipping Industry -

Industrial boiler manufacturer MIURA CO., LTD. (Tokyo Head Office: Minato-ku, Tokyo; President and CEO: Tsuyoshi Yoneda; hereinafter referred to as “MIURA”) has completed construction of a dedicated facility at the Horie factory located at its Matsuyama head office, for the development and production of ammonia-fueled marine boilers. The company is pleased to announce that demonstration development testing began in April. MIURA is collaborating with the Planning and Design Center for Greener Ships[*2] (Location: Chiyoda-ku, Tokyo; Representative Director: Shinjiro Mishima) in the development of marine equipment for use on next-generation environmentally friendly ships.

Heavy fuel oil, the main fuel used in marine equipment such as marine auxiliary boilers, emits carbon dioxide on combustion, making the development of products that use new fuels essential to the decarbonization of the shipping industry. Ammonia is attracting attention as a promising alternative fuel for decarbonization since it does not have any carbon and thus does not emit carbon dioxide when burned.

MIURA completed basic trials using ammonia fuel in small test boilers equipped with DF burners[*1] in February 2025, and is moving forward with development efforts aimed at practical use. The company is also actively working to develop boilers equipped with DF burners that use not only ammonia but also low-carbon fuels such as LNG and methanol, helping to reduce greenhouse gases in the shipping industry.

[Overview of Facility]

1. Mechanisms designed for safety

This dedicated facility can conduct combustion testing at a practical scale using approximately 500 kg/h of ammonia. When using ammonia, care must be taken with regard to the emission of unburned ammonia (ammonia slip), along with NOx (nitrogen oxide) and N_2O (nitrous oxide, which has a GWP[*3] approximately 300 times that of CO_2), both generated in the combustion process. Accordingly, MIURA has fitted the facility with mechanisms to ensure safety, such as exhaust gas processing equipment, and is working to develop burners that do not include these products in combustion exhaust gas.

2. Dedicated equipment designed for verification testing and production commissioning tests

Ammonia combustion boilers may be required to supply steam using ammonia or heavy fuel oil as a fuel, depending on the operating conditions of the ship, or to operate with the aim of processing BOG[*4] containing N_2, which is an inert gas. To accommodate these requirements, this equipment is designed to allow verification testing in anticipation of on-board operation, and to offer excellent expandability in consideration of production commissioning tests after commercialization.

▲Ammonia cylinder mounting stand

▲Ammonia vaporizer / dilution tank

▲Exhaust gas treatment equipment

*1. “DF burner” is an abbreviation of “Dual-Fuel burner” and refers to burners that can burn two kinds of fuel (ammonia gas and heavy fuel oil in the case of ammonia DF burners).
*2. Established in October 2020, the Planning and Design Center for Greener Ships (GSC) is an organization with the goal of achieving zero emissions in international shipping. It integrates technologies from each of its member companies, and plans and promotes advanced ships. Its principal activities include the design and development of new concept ships, research on international standards and the environments in which ships are used, evaluation of specific solutions, and the development of related technologies.
*3. An abbreviation of “Global Warming Potential,” GWP is an indicator of the degree to which a specific greenhouse gas affects warming in the atmosphere.
*4. BOG is an abbreviation of “Boil-Off Gas,” and refers to gases such as liquefied natural gas or ammonia that vaporize due to natural heat from outside the storage tank when storing or transporting low-temperature liquids.

▼Inquiries
Corporate Communications Department, MIURA CO., LTD.
Tel: (+81) 089 979 7019
Email: info_miuraz@miuraz.co.jp
URL: https://www.miuraz.co.jp