DAIHATSU DAIHATSU DIESEL

20rd July 2023

23,660-TEU Container Vessel "BERLIN EXPRESS" equipped with Daihatsu Marine Dual Fuel Engine "6DE35DF" "8DE35DF" is in service.

On June 15, the 23,660-TEU container vessel "BERLIN EXPRESS" for HAPAG LLOYD built in a shipyard in

Korea was placed in service.

Compared to conventional vessels using heavy fuel oil, this vessel is expected to reduce the emission of greenhouse

gas, CO2, by 25 to 30%, SOx (sulfur oxide) causing air pollution by almost 100% and NOx (nitrogen oxide) by 80

to 90%. It is a next-generation environmentally compatible vessel.

The engine "6DE35DF" "8DE35DF" for this vessel is a dual fuel engine that can be switched between the gas mode

using natural gas as fuel and the diesel mode using liquid fuel depending on conditions. In the gas mode, CO2

emissions can be reduced by about 28%, and SOx and NOx emissions can be reduced by about 99% and 90%,

respectively. In addition, PM (particulate matter) emissions can be reduced (by about 100%). It is an environmentally

friendly high-performance engine.

We have received orders for about 200 dual fuel engines mainly for automobile carriers and large container vessels

for which the use of dual fuel engines is being promoted.

Three automobile carriers equipped with the same series of dual fuel engines "6DE28DF" have been put in service,

and the engines have a proven track record.

In addition, we shipped "6DE20DF" for a bulk coal carrier in July 2022 and "6DE23DF" for an ore carrier in February,

2023.

We consider global environmental protection to be a key management issue and will continue to promote the

reduction of greenhouse gas emissions and the effective use of resources through the products and services we provide

to protect the rich natural environment and support the safety and security of the people.

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