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First European Dredger Conversion to Dual-Fuel Operation Delivered

MAN 35/44DF engines running on LNG/MGO power 'Samuel de Champlain' TSHD

Damen Shiprepair & Conversion has signed off on the conversion of a dredger to dual-fuel operation on liquefied natural gas (LNG) and marine gas oil (MGO), and which is now powered by MAN 35/44DF engines.

The conversion of the 'Samuel de Champlain' is the first of its kind in Europe and is part of an EU-supported initiative to promote LNG propulsion in short-sea vessels operating along the European Atlantic coast.

The 117m, 8,500m³ trailing suction hopper dredger is owned by Rouen-based GIE Dragages-Ports and operated by Port of Nantes-Saint-Nazaire. Its conversion involved the replacement of its diesel-electric MGO-burning propulsion system with 3 × MAN 6L35/44DF dual-fuel models, as well as the installation of onboard LNG storage facilities.

Louis-Marie Rouxel, Project Manager for Damen, said: "The main reason for choosing MAN was the performance of its highly competitive 35/44 DF engine in response to load impacts. The unique demands of dredgers required engines capable of supporting great loads and, as a result of our studies, it turned out that this was the engine that best met these parameters."

Lex Nijsen, Head of Four-Stroke Marine Sales, MAN Energy Solutions, said: "This is a significant moment for European shipping, as evident by the support the EU is offering. This conversion is just the beginning of a path that will lead to a comprehensive LNG infrastructure around the continent in the pursuit of more efficient propulsion and cleaner emissions. I'm very happy that the MAN 35/44DF engine has been deemed worthy of meeting the demanding criteria that both the dredger world and this broader project require."

The Samuel de Champlain was built in 2002 and is the largest in the GIE Dragages-Ports fleet. Based in the Port of Nantes-Saint-Nazaire, the vessel operates between the Loire and Seine estuaries.

The MAN 35/44DF engine

Damen and Dragages-Ports selected an MAN 35/44DF propulsion solution on account of its outstanding performance criteria and increased environmental friendliness. Decisive criteria for a 35/44DF solution include:

- outstanding load-step capability that can handle the high load-fluctuations that are typical for dredger applications
- ability to dredge continuously in gas-mode operation (Tier III) without switching over to diesel-mode (Tier II)
- pure gas-start capability for minimal NO_x emissions from start of operation
- gas-mode operation from 0 - 110% load, with no need to switch over to diesel operation upon reaching 100% load – in other words, continuous Tier III operation with minimal NO_x emissions
- automated adaptive combustion control in the event of changing ambient conditions, gas quality, wear and tear, etc. with the ability to maintain gas operation at the highest efficiency over time
- the ability to operate even with poor gas-quality, down to a methane number of 70MN, without derating the engine power output, enabling operation on a wider variety of fuels with different qualities and expense.

Project background

The conversion project was granted by the European Commission's Innovation and Networks Executive Agency (INEA) via its Connecting Europe Facility programme. To qualify for funding, GIE Dragages-Ports formed a consortium to promote the use of LNG by small-scale vessels on the Atlantic coasts of Spain and France and up into the English Channel – in the process, kickstarting the development of an LNG bunkering network.

The conversion of the Samuel de Champlain intends to demonstrate the feasibility of using LNG as a fuel on smaller vessels, and allows GIE Dragages-Ports to optimise costs by reducing fuel bills and engine maintenance, while simultaneously reducing CO₂, NO_x and particulate matter emissions.

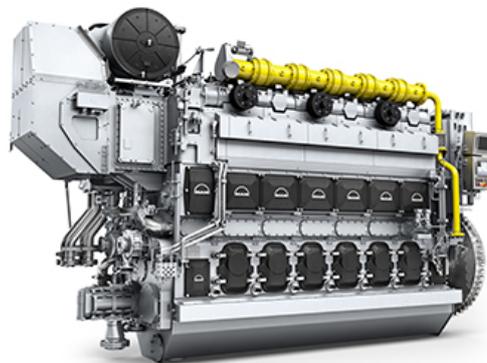
The Samuel de Champlain project is itself the first phase of the global project: 'Towards a Blue Atlantic Arch by 2025' that aims to improve the sustainability of marine traffic through the use of LNG as an environmentally-friendly and cost-effective, alternative to conventional ship fuels for small vessels.

About GIE Dragages-Ports

GIE Dragages-Ports owns, maintains and charters out a fleet of seven dredgers to six key ports serving the French Atlantic coast, plus Marseille in the Mediterranean.



The 'Samuel de Champlain' (picture courtesy Dragages-Ports)



The MAN 35/44DF

MAN Energy Solutions enables its customers to achieve sustainable value creation in the transition towards a carbon neutral future. Addressing tomorrow's challenges within the marine, energy and industrial sectors, we improve efficiency and performance at a systemic level. Leading the way in advanced engineering for more than 250 years, we provide a unique portfolio of technologies. Headquartered in Germany, MAN Energy Solutions employs some 14,000 people at over 120 sites globally. Our after-sales brand, MAN PrimeServ, offers a vast network of service centres to our customers all over the world.