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**Press release**

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**MAN Energy Solutions SE**  
Teglhølmegade 41, 2450 Copenhagen SV,  
Denmark  
[www.man-es.com](http://www.man-es.com)

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**Group Communications**  
Nils Søholt  
P +45 33 85 26 69  
[Nils.Soeholt@man-es.com](mailto:Nils.Soeholt@man-es.com)

## Hyundai Orders World's First ME-GA

### 12 x low-pressure, dual-fuel engines chosen for series of LNG carriers

HHI-EMD (Hyundai Heavy Industries' Engine Machinery Division) has placed a world-first order for the low-speed ME-GA engine, the latest edition to MAN Energy Solutions' dual-fuel portfolio. HHI-EMD has ordered 2 x 5G70ME-GA10.5 engines for each of 6 x 174,000-m<sup>3</sup> LNG carriers for shipowners KLC (2 vessels), PANOcean (2), Knutsen (1), and JP Morgan (1). Hyundai's Shipbuilding Division (HHI-SBD) will construct the vessels in Korea, which will be chartered by Shell Tankers (Singapore) Private Limited on delivery to the shipowners.

Delivery of the first engine is scheduled for August 2022, with the final unit arriving during the following year. MAN Energy Solutions reports that each of the engines will feature its proprietary EGR (Exhaust Gas Recirculation) system for emissions reduction.

Bjarne Foldager, Senior Vice President and Head of Two-Stroke Business, MAN Energy Solutions, said: "Following our virtual launch event in March this year, we have experienced overwhelming interest from shipowners, shipyards, engine builders and charterers in ME-GA. We are very excited about this first order and are looking forward to a successful, close cooperation with all parties to ensure the engines meet the high performance and reliability level expected of them."

Foldager continued: "The ME-GA's genesis owes much to us recognising a strong market desire for a lower-cost alternative to the ME-GI engine, driven primarily by the LNG carrier market. Accompanied by our EGR system – a proven concept with a decade of experience behind it – these engines will deliver lower methane-slip compared to existing, Otto-cycle LNG engines, and better fuel-efficiency in both gas and fuel-oil modes. This further confirms our leadership in the critical, dual-fuel, marine segment."

MAN Energy Solutions reports that its portfolio of two-stroke, dual-fuel engines has accumulated over 1.7 million operating hours from the 158 engines currently in service – all running on clean fuels such as LNG, LPG, ethane and methanol. With fuel prices and availability currently in flux, MAN Energy Solutions expects the option of retrofitting to dual-fuel engines to increasingly become a necessity.

### About ME-GA

The high-efficiency MAN B&W ME-GA engine delivers a low CAPEX solution aimed at certain vessel types and applications, such as LNG carriers, that are able to use 'boil-off' gas as a source of fuel. It could also be of appeal to smaller vessels where low capital outlay is a priority.

Based on the well-proven MAN B&W dual-fuel design with minimal installation requirements, the MAN B&W ME-GA uses an efficient ignition concept and unique gas-admission system that delivers safe and reliable operation.

The ME-GA furthermore features minimal operational costs, simple supply and purging concepts, and low maintenance costs for its fuel-gas supply system. With Tier III compliance in gas mode, the engine meets all current and upcoming NO<sub>x</sub> emission regulations with the addition of EGR.

## About EGR

In November 2020, MAN Energy Solutions had announced that it would offer its proprietary EGR (Exhaust Gas Recirculation) system as an emissions solution for the ME-GA. EGR is a NO<sub>x</sub>-emissions-reduction technique that ensures IMO Tier III-compliance in diesel mode for the ME-GA.

The company reports that EGR will enable the ME-GA to reduce specific gas consumption by ~3%, and specific fuel-oil consumption by 5%. It will also significantly reduce methane slip by 30 to 50%, and improve the stability of the Otto-cycle combustion process. EGR will enable the ME-GA to meet Tier III requirements in both fuel oil and gas modes without additional aftertreatment.

The ME-GA EGR solution is an engine-integrated design that interacts with the exhaust gas before the turbocharger, and can be integrated into existing engine-room designs since the EGR unit itself does not change the engine footprint. Its design-similarity to that of ME-C engines' EGR systems will lower its price point, since the supply chain and components are already matured.

The volume requirements of the ME-GA EGR system are also significantly lower with, for example, less pipework required than for low-pressure EGR solutions.

## The Maritime Energy Transition

MAN Energy Solutions believes that it is time for what it terms a 'Maritime Energy Transition' to find clean, decarbonised solutions for seaborne trade and transportation. Essentially, it is the company's call to action to reduce emissions and establish natural gases as the fuels of choice in global shipping. It strongly promotes a global 'turn to gas', driven by the IMO, and a common approach by the shipping industry and politics to invest in infrastructure development and retrofits.



*The New ME-GA dual-fuel engine was unveiled during a livestream from MAN Energy Solutions' Research Centre Copenhagen on March 18<sup>th</sup>, 2021. The new engine is an Otto-cycle variant of the company's successful ME-GI engine*



*Rendering of a 5G70ME-GA engine*

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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.