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WinGD debuts Variable Compression Ratio technology on NYK Line newbuilds

Swiss marine power company WinGD will realise the first commercial instalments of its new variable compression ratio (VCR) technology on two new dual-fuel LNG powered vessels being built for NYK Line. A 95,000 DWT bulk carrier being built at Oshima Shipbuilding Co.,Ltd. and a 7,000 CEU pure car and truck carrier (PCTC) being built at Shin Kurushima Dockyard Co.,Ltd will be the first two-stroke powered vessels that can dynamically optimise combustion depending on the fuel being used – delivering improved emissions, fuel economy and fuel flexibility.

VCR technology was introduced in June after more than a decade of co-development with Mitsui E&S DU (MESDU). The simple hydraulic solution mounted on the piston crosshead represents a breakthrough in two-stroke engine design as the first concept enabling compression ratio to be adjusted, delivering significant greenhouse gas emissions reductions in both diesel and gas modes (around 6% and 3% respectively).

Running in diesel mode, this equates to a saving of around 1,555 tonnes of CO_{2e} a year – the equivalent of taking 338 ‘typical passenger cars’ off the road for a year, according to US Environmental Protection Agency figures.

WinGD General Manager Application & Technical Sales, Marcel Ott said: “NYK Line has long been a valued development partner, entrusting WinGD with innovative, sustainability driven projects, including recently our first system integration project. Strong partnerships make sustainable ships, and it is fitting that this collaboration has now resulted in the first deployments of VCR, a technology that we believe can have a huge impact on performance of our X-DF LNG-fuelled engines.”

The first reference, the Oshima-built bulk carrier, is expected to be delivered in 2025. It will be powered by a WinGD 6X62DF-2.1 engine. The PCTC is expected to be delivered in 2026, powered by a WinGD 7X62DF-S2.0 engine.

The PCTC vessel will mark the first deployment of WinGD’s new 62-bore short-stroke engine. It will also be among the first to feature on-engine iCER – a compact version of the X-DF2.0 technology that offers further reductions in fuel consumption and emissions while assuring Tier III NO_x compliance in both gas and diesel modes.

VCR technology is currently available as an option for 62- and 72-bore X-DF engines and has no impact on engine footprint and installation requirements.

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WinGD in brief

WinGD advances the decarbonisation of marine transportation through sustainable energy systems using the most advanced technologies in emissions reduction, fuel efficiency, hybridisation and digital optimisation. With their two-stroke low-speed engines at the heart of the power equation, WinGD sets the industry standard for reliability, safety, efficiency and environmental design, backed by a global network of service and support. Headquartered in Winterthur, Switzerland since its origin as the Sulzer Diesel Engine business in 1893, today it is powering the transformation to a sustainable future.

WinGD is a CSSC Group company.

For more information visit: www.wingd.com