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# WINGD EXTENDS DIGITAL DIAGNOSTICS SOLUTION

The success of the upgraded WinGD integrated Digital Expert (WiDE) platform since its launch last year has led to an extension of its application in the field

In February 2023 WinGD launched a pilot project for a new engine diagnostics solution designed to greatly simplify engine maintenance for crew and fleet managers. This enhancement to its engine monitoring and remote support platform, WiDE, was initially trialled on a vessel managed by Bernhard Schulte Shipmanagement (BSM) and, as part of the initial pilot, WinGD defined faults, improved diagnostics and formulated a scheme for condition-based maintenance recommendations which train the artificial intelligence that analyses the engine data. The accuracy of the diagnostics is currently being validated by feedback from crews about maintenance activities, as well as by subsequent monitoring and analysis.

Over the past year WinGD has extended that concept across two more pilot cases and says it is seeing very encouraging results. The company is now working with a number of class societies, including Lloyd's Register, American Bureau of Shipping, Bureau Veritas and China Classification Society (CCS), to illustrate the benefits achieved and the ability of the predictive maintenance solution to reduce the need for physical class inspections. The ultimate aim, WinGD says, is to commercialise the enhanced concept as an optional addition to the existing WiDE subscription offer.

WinGD's head of retrofit solutions, René Baart, says: "Condition-based maintenance is increasingly important, but we think it is helpful to go beyond that. So WiDE

doesn't just look for faults that indicate wear on components, but analyses performance for any deviation that may indicate that wear could happen. We have successful cases where components at risk of wear were changed early. That's a really useful benefit for ship operators as it means that the replacement can be scheduled optimally based on the vessel's operating schedule, minimising vessel downtime, and without interfering with other components or systems."

WiDE has also been shown to have benefits beyond engine maintenance. One example relates to the impact of hull and propeller fouling on vessel efficiency. WiDE uses a digital twin of the individual engine at shop test as a baseline, comparing real-time performance to that model while taking into account operating conditions. Using this approach WiDE can tell when the hull and propeller are fouled, isolating its impact and highlighting how cleaning will affect efficiency. Operators can then take that knowledge and work out when would be the best time and place to conduct cleaning, restoring the vessel to better performance without either spending too much on excessive cleaning or leaving it too long between cleans.

Engine retrofitting as a means of achieving cost savings and environmental regulatory compliance in the longer term is a key trend within the shipping industry and as a reflection of that, WinGD's list of retrofit projects is growing. Its first series of methanol retrofits are

REPRESENTATIVES OF WINGD AND MES-DU AT THE END OF THE VCR TEST CAMPAIGN IN JAPAN





RENÉ BAART, HEAD OF RETROFIT SOLUTIONS, WINGD

approaching on a series of COSCO container ships. Although these are newbuild vessels being built in China, only the final vessel in the series will have a new methanol-fuelled X92-DF-M engine. The first three will have diesel-fuelled X92-B engines installed, and these will then be retrofitted to X92-DF-M engines at the newbuild yard once the final engine is built and commissioned. According to Baart: “This is a really smart way to develop retrofit packages and experience, working with partners, including the shipbuilder and engine builder, that understand the engine deeply.”

WinGD also recently announced its first retrofit project for a new solution, involving variable compression ratio (VCR) technology, that dynamically optimises combustion on dual-fuel engines for the current fuel and engine load. A major container shipping line will install VCR on a WinGD RT flex50DF dual-fuel engine on one of its vessels, providing a long-term, full-scale test of the concept’s reliability and operability.

Baart says: “The technology, which will eventually be available for all WinGD’s LNG dual-fuel engines, has performed well on the testbed with our development partners, MES-DU, in Japan. The retrofit pilot will give us experience of installation on existing vessels and a chance to measure fuel and emissions saving performance against our expectations.”

He adds: “We are also in the process of ensuring that all our new engines are designed to make future retrofits as simple as possible. They already share a common robust design that can withstand the higher pressures and temperatures needed for alternative fuels. The latest changes add to that by ensuring that the engine bedplate and A-frame are prepared for the extra servo oil supply units that will be needed to activate multiple fuel pumps on each cylinder head, when the cylinder covers are changed for the new fuel.”

While many shipowners are already choosing methanol or ammonia-fuelled engines, many are sticking with diesel or LNG until the fuel availability and cost picture becomes clearer. Baart says: “Engines that are optimally ready for retrofitting give operators the extra time they need to assess lower-carbon fuel choices, safe in the knowledge that the installed engine will not be a barrier to their decision. This is already being reflected in our discussions with owners.”

The retrofit trend is also evident in a slightly different form in the ammonia sector. Many LPG carriers also carry ammonia, and as ammonia becomes more widely transported as a mainstream energy source, some of those vessels are likely to become dedicated to that trade. Consequently, it would be logical for them to run on ammonia as fuel, but at present green ammonia remains scarce and expensive.

However, given those expected market dynamics, WinGD believes it would make sense to offer an engine that can initially use LPG and then be converted for ammonia fuel when the trade takes off. Baart says: “This is exactly what we are developing. The X-DF-P will be our first engine capable of burning ammonia as fuel. It will be ‘reverse engineered’ from our X-DF-A ammonia-fuelled engine, ensuring that retrofitting from LPG to ammonia, or from ammonia to LPG if needed, is straightforward when the time comes. This is a long-term development aimed at 2027, which is when owners are likely to begin considering these kinds of fuel decisions.” ■

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