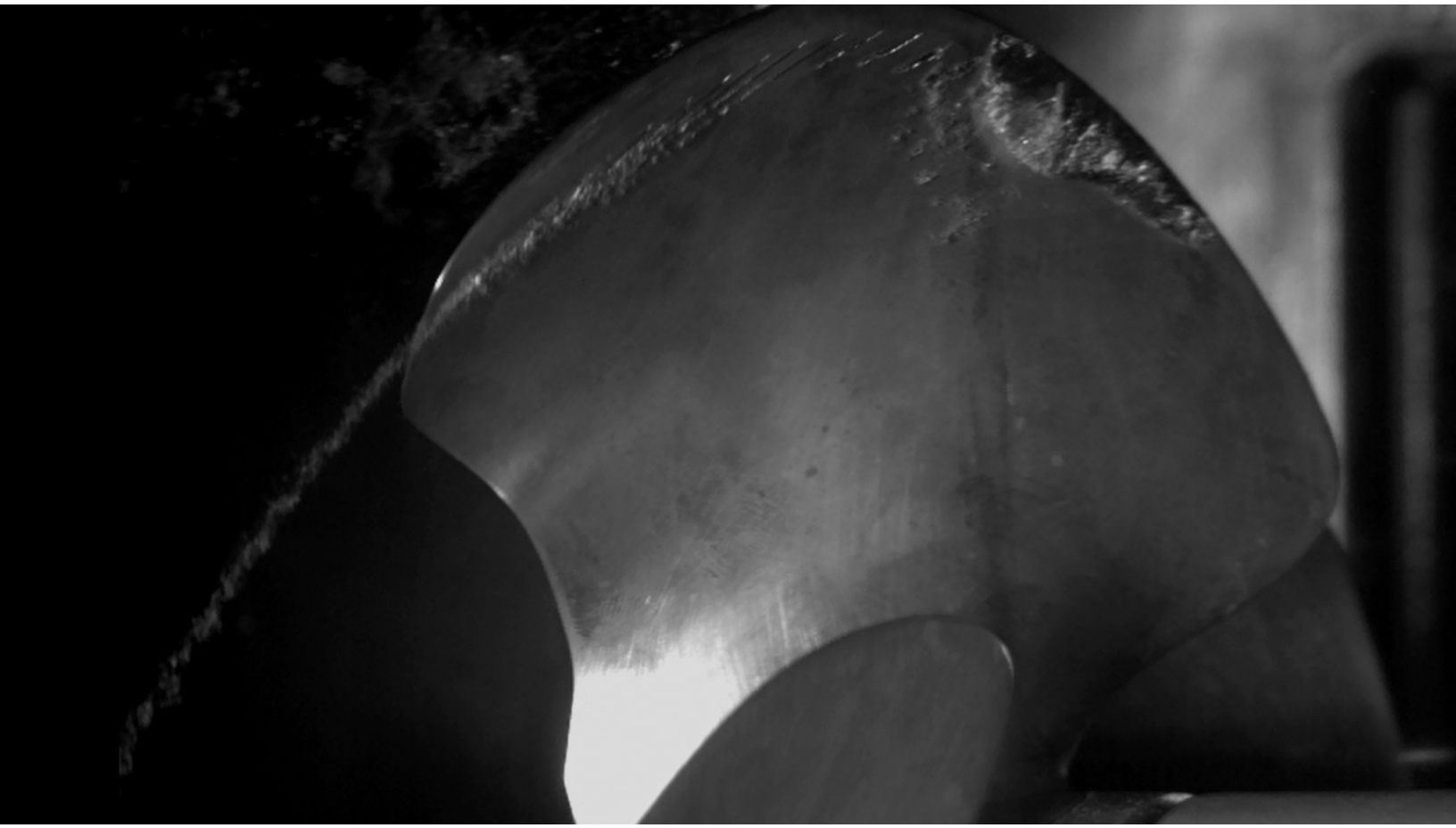

Jul 05, 2019 09:40 BST

KONGSBERG propeller Blade Air Emissions technology enables a silent sea

Kongsberg, Norway, 5th July 2019 – Kongsberg Maritime has successfully adapted a propeller concept used in naval applications and is now offering the same operational and environmental benefits to commercial shipping customers.

While the naval sector has been using KONGSBERG Blade Air Emission technology for a number of years, with several navies deploying it to limit vessel signature, the process is now being applied to commercial ship propellers to reduce the effect of underwater radiated noise on marine life.

By machining a channel into the leading edge of the propeller blades, the Blade Air Emissions concept significantly reduces cavitation-induced noise and erosion risk.

The Blade Air Emission concept, applicable to conventional fixed pitched and controllable pitched propellers, applies the results of extensive research undertaken at the KONGSBERG Hydrodynamic Research Centre (KHRC) in Kristinehamn, Sweden, to offer a more silent propeller to the commercial marine market.

Robert Gustafsson, Senior Hydrodynamicist, KHRC, said: *"Propellers optimised with the Blade Air Emission system have for some time been used on naval vessels to reduce and distort vessel signature. Following the success of the system we can now roll out the concept to the wider shipping industry as a way to reduce propeller noise and erosion risk."*

Propellers accept cavitation to optimise vessel performance and efficiency, but by carefully balancing the amount of air circulated around the blades, Kongsberg Maritime can optimise the negative effects of cavitation without adversely affecting ship efficiency.

According to Gustafsson there is an equilibrium. *"With too much air, the underwater radiated noise increases, and propeller efficiency reduces. There is a sweet spot. We can optimise the propeller using this concept to achieve the optimum noise reduction without affecting propulsion performance."*

Göran Grunditz, Manager, KHRC, said: *"We see huge benefits in the commercial world for the Blade Air Emission technology. While there are financial advantages in reducing the cost of repairing or replacing propeller blades damaged by cavitation erosion, the concept minimises substantially the underwater radiated noise from a ship's propeller, which in some cases can be 180dB.*

"This is a major environmental problem and is already being considered at a regulatory level. It affects the migratory, reproduction and feeding patterns of marine life, such as dolphins, whales and other species. It also causes high levels of stress for marine life."

"We are offering the industry a more silent propeller for the benefit of the environment and the ship operator. It's a real game-change in propeller design,"

said Grunditz.

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About Kongsberg Maritime

Kongsberg Maritime is a global marine technology company providing innovative and reliable 'Full Picture' technology solutions for all marine industry sectors including merchant, offshore, cruise, subsea and naval. Headquartered in Kongsberg, Norway, Kongsberg Maritime has manufacturing, sales and service facilities in 34 countries.

Kongsberg Maritime solutions cover all aspects of marine automation, safety, manoeuvring, navigation, and dynamic positioning as well as energy management, deck handling and propulsion systems, and ship design services. Subsea solutions include single and multibeam echo sounders, sonars, AUV and USV, underwater navigation and communication systems.

Training courses at locations globally, LNG solutions, information management, position reference systems and technology for seismic and drilling operations are also part of the company's diverse technology portfolio. Additionally, Kongsberg Maritime provides services within EIT (Electro, Instrument & Telecom) engineering and system integration, on an EPC (Engineering, Procurement & Construction) basis.

Kongsberg Maritime is part of Kongsberg Gruppen (KONGSBERG), an international, knowledge-based group that celebrated 200 years in business during 2014. KONGSBERG supplies high-technology systems and solutions to customers in the oil and gas industry, the merchant marine, and the defence and aerospace industries.

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