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ABS grants Alfa Laval the marine industry's first approval in principle (AIP) for firing boilers with methanol

Maritime classification society the American Bureau of Shipping (ABS) has granted Alfa Laval the first marine approval for operating boilers on methanol. Alfa Laval received an approval in principle (AIP) on 4 November 2021, based on extensive solution testing at the Alfa Laval Test & Training Centre.

Taking methanol beyond the main engines

Methanol, which is liquid at ambient temperatures and carbon-neutral if produced from green sources, is the next likely fuel step in decarbonizing the marine industry. While methanol can be found on a handful of vessels and is planned for many more, its use has so far been limited to main engines. In the future, methanol operations will need to extend to boilers.

“Alfa Laval is looking at the full scope of methanol’s influence on board,” says Lars Skytte Jørgensen, Vice President Technology Development, Energy Systems, Alfa Laval Marine Division. “The most natural choice for boilers is to fire them with the vessel’s primary fuel, but methanol’s low-flashpoint nature and the differences in its energy density require a new approach to the burner and fuel supply systems. It was important for us to develop that approach, and we are proud to have it validated by ABS.”

Methanol boiler testing and approval in principle from ABS

Alfa Laval has been testing boiler operations with methanol since early 2021 at the Alfa Laval Test & Training Centre, where engine combustion tests with methanol are also underway. Tests have been conducted using a pressure-atomizing MultiFlame burner on an Alfa Laval Aalborg OS-TCi boiler, as well as a methanol valve unit (MVU) designed by Alfa Laval to meet the class requirements from ABS.

Initial results, obtained with both pure methanol and a methanol-water mixture, showed as expected that methanol is easy to ignite and results in very low emissions. Focus was therefore placed on securing the same steam output with methanol – despite its lower heat value – as would be the case using oil or gas as fuel. A solution was reached after a few adaptations, ensuing that a boiler of a given size can produce the same amount of steam regardless which fuel is used. This meant that development could move rapidly to optimizing the fuel supply system and working with ABS on the methanol AIP.

“ABS is a leader in maritime sustainability and supporting the industry’s move to alternative fuels like methanol is a high priority. We are proud to partner with Alfa Laval and support this pioneering industry development,” said Vassilios Kroustallis, ABS Senior Vice President, Global Business Development.

Taking the boiler and energy efficiency forward

With the AIP in hand, the next step for Alfa Laval will be a pilot installation on an oceangoing vessel. Results from field testing will be crucial in fine-tuning the methanol boiler solution and

arriving at a commercial design.

Meanwhile, Alfa Laval is pursuing wider optimization possibilities that will compensate for methanol's lower energy density and higher price. One of these is the use of an Alfa Laval Aalborg Micro economizer in conjunction with the OS-TCi. By absorbing waste heat from the boiler's exhaust gas, the Aalborg Micro would recover valuable energy and reduce boiler-related fuel consumption by roughly 10%.

"Moving to methanol will require many changes on board, especially when it comes to energy management," says Jørgensen. "The Aalborg Micro is a versatile boost in energy efficiency, suitable for the boiler and elsewhere. Together with other Alfa Laval solutions in development, it will help vessels fulfil energy needs while minimizing the methanol they consume."

To learn more about methanol equipment solutions and Alfa Laval's approach to the methanol transition, please visit: www.alfalaval.com/methanolasfuel

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Editor's notes

This is Alfa Laval

Alfa Laval is active in the areas of Energy, Marine, and Food & Water, offering its expertise, products, and service to a wide range of industries in some 100 countries. The company is committed to optimizing processes, creating responsible growth, and driving progress – always going the extra mile to support customers in achieving their business goals and sustainability targets.

Alfa Laval's innovative technologies are dedicated to purifying, refining, and reusing materials, promoting more responsible use of natural resources. They contribute to improved energy efficiency and heat recovery, better water treatment, and reduced emissions. Thereby, Alfa Laval is not only accelerating success for its customers, but also for people and the planet. Making the world better, every day. It's all about *Advancing better*[™].

Alfa Laval has 16,700 employees. Annual sales in 2020 were SEK 41.5 billion (approx. EUR 4 billion). The company is listed on Nasdaq OMX.

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