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Alfa Laval receives Approval in Principle for its Gas Combustion Unit for hydrogen

Alfa Laval has achieved a significant milestone in the development of its Gas Combustion Unit (GCU) technology for hydrogen boil-off gas, having received Approval in Principle (AiP) from the classification society DNV

A key step towards enabling safe hydrogen transportation

Alfa Laval has been granted Approval in Principle from DNV for its Gas Combustion Unit (GCU) to be used on liquid hydrogen carriers. The AiP affirms the technical feasibility and safety mechanism of the GCU design and concept.

The boil-off gas technology is essential for liquid hydrogen carriers, as venting cargo is restricted and a GCU is needed to control tank pressure and temperature to safely combust hydrogen boil-off gas (BOG) from a vessel's storage tank.

DNV's AiP signifies a major accomplishment for Alfa Laval's hydrogen GCU design. It paves the way for the development of a GCU prototype that will undergo further testing and type approval to create a safe and efficient system for managing BOG on liquid hydrogen carriers.

"The AiP for our GCU design is a significant achievement for us. It demonstrates that our concept has been assessed with respect to DNV's classification rules and adheres to established technical and safety standards," says **David Jung**, Business Development Manager, Alfa Laval.

Building on marine gas combustion experience

Unlike Liquefied Natural Gas (LNG), hydrogen presents unique challenges for safe and efficient transportation at sea. It's incredibly low boiling point of -253°C leads to a higher boil-off rate during transport compared to LNG. Additionally, hydrogen's inherent properties – being light, highly flammable, and easily ignitable – necessitate prioritizing safety in the design of a GCU for hydrogen carriers.

The basis of the AiP is related to Alfa Laval's existing LNG GCU technology. The company's expertise with the LNG carrier GCU gives an advantage in the development of a GCU for hydrogen. With over 200 successful installations, and an additional 100 units having been ordered, Alfa Laval GCU for LNG provides a strong foundation for the hydrogen application. However, the unique properties of hydrogen demand adjustments to ensure safe and efficient operation.

"For the industry to confidently transport hydrogen, ensuring the safety and reliability of enabling technologies is paramount. Alfa Laval's proven experience in gas combustion technology for LNG carriers positions us well for GCU technology once the hydrogen transportation market takes off" says **David**.



To learn more about the existing Alfa Laval GCU and other solutions for marine, please visit: [Marine | Alfa Laval](#)

Explore Alfa Laval's sustainable solutions & technologies: [Sustainable shipping solutions and technologies | Alfa Laval](#)

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Editor's notes

This is Alfa Laval

The ability to make the most of what we have is more important than ever. Together with our customers, we're innovating the industries that society depends on and creating lasting positive impact. We're set on helping billions of people to get the energy, food, and clean water they need. And, at the same time, we're decarbonizing the marine fleet that's the backbone of global trade.

We pioneer technologies and solutions that free our customers to unlock the true potential of resources. As our customers' businesses grow stronger, the goal of a truly sustainable world edges closer. The company is committed to optimizing processes, creating responsible growth, and driving progress to support customers in achieving their business goals and sustainability targets. Together, we're pioneering positive impact.

Alfa Laval was founded 140 years ago, has customers in some 100 countries, employs more than 21,300 people, and annual sales in 2023 were SEK 63.6 billion (5.5 BEUR). The company is listed on Nasdaq Stockholm.

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