Press release

Alfa Laval scales AR-enabled remote support to boost vessel performance and compliance at sea

Leveraging the advancements in connectivity and augmented reality (AR) technology, Alfa Laval is strengthening its remote service offering to help crews troubleshoot, maintain compliance and optimize equipment performance in real time directly from vessels at sea. Building on successful trials in partnership with shipowners and ship managers, the company is now developing scalable remote support solutions that give crews continuous access to expert assistance, improving uptime, efficiency, safety and decarbonization at sea.

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Meeting the demand for real-time technical expertise

As the maritime sector accelerates the adoption of alternative fuels and advanced energy-saving technologies, onboard systems are becoming more complex, and the need for immediate expert guidance is increasing. Evolving regulations and a stronger focus on compliance make quick support essential for crews to navigate operational and regulatory challenges. Reliable connectivity in machinery spaces, combined with established remote support infrastructure, creates new opportunities to support crews with faster decision-making and safer operations.

"With the industry transitioning to new technologies and the rapid advancements in remote communication tools, now is the ideal time to integrate remote connectivity into real-time support services," says **Jesper Boman**, Vice President, Head of Vessel Operations, Alfa Laval. "Through investments in next-generation service capabilities, we are expanding digitally enabled support for our customers. By connecting onboard crews directly with shore-based technical experts, we enable real-time collaboration that helps crews operate new and complex equipment with confidence."

Remote AR guidance minimizes equipment downtime, boosts operational efficiency, and enhances crew safety. It limits service travel, lowering costs and emissions, while supporting efficient, compliant and reliable vessel operations.

From connected equipment to connected engine rooms

For many years, Alfa Laval has developed and tested installed gateways on key equipment, including ballast water management systems (BWMS), fuel and lube oil purifiers, and oily water separation systems, to enable data-driven troubleshooting, performance improvements and secure regulatory compliance.

Until recently, the limited availability of reliable deep-sea connectivity restricted the ability of ocean-going vessels to fully leverage these capabilities. Today, improvements in satellite communications and onboard network technology are making reliable connectivity at sea far more accessible.

In collaboration with Maersk, Anglo-Eastern and Everllence PrimeServ, Alfa Laval has explored how onboard networks can be extended into machinery spaces to enable real-time monitoring and remote support of critical equipment. Field trials validated multiple use cases, including troubleshooting, crew training, operational guidance and product evaluation. Tests also confirmed that only minor hardware investment is required to bring key engine-room equipment online, creating a practical foundation for scalable remote services.

"Through extensive field tests conducted across various use cases, the joint project with our partners successfully validated the effectiveness of augmented remote support on board vessels," says **Søren Helmuth Jensen**, SVP Technology Development, Business Unit Marine Solutions, Alfa Laval. "These trials enabled support teams to collaborate remotely with crews and customers from any land-based location, accelerating issue resolution, generating valuable learnings for all stakeholders."

Moving from troubleshooting to compliance and performance support

The first step in remote guidance is combining connected equipment with augmented reality (AR) to strengthen remote troubleshooting and crew support. By enabling remote experts to collaborate visually with onboard crews, equipment issues can be resolved faster and more efficiently.

"By using AR guidance, our remote experts can see exactly what the crew sees and guide them step by step through complex tasks. We've already applied AR-supported remote assistance in real onboard cases, including boiler emergency operation, manual discharge of a separator, assessing the status of a freshwater generator (FWG), and troubleshooting a Methanol fuel supply system," says **Søren.**

Alfa Laval's ambition extends beyond troubleshooting. It aims to expand remote services from reactive troubleshooting to proactive compliance support and performance monitoring. The next milestone

starts with PureBallast, as a new Compliance Monitoring Package planned for launch soon. This marks an important step toward scalable, real-time remote compliance and performance support across a broader equipment portfolio.

For more information about Alfa Laval AR Remote Troubleshooting: Alfa Laval 24/7 Service & Support | Alfa Laval

To learn more about Alfa Laval's environmental technologies and approach to sustainable shipping, please visit: www.alfalaval.com/marine

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 thatfree 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 100 countries, employs more than 22,300 people, and annual sales were SEK 66.9 billion (5.8 BEUR) in 2024.The company is listed on Nasdaq Stockholm.

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