



Media Release

Schaffhausen

11 February 2025

GF Piping Systems supplies custom thermoplastic piping solutions for the world's largest diesel-electric icebreaker

To ensure that its icebreaker Oden continues to operate at the highest level, the Swedish Maritime Administration decided to replace the steel pipes of the ship's jet thrusters with a complete solution by GF Piping Systems. Extensive engineering services enabled a cost-efficient retrofit with 200 meters of DN1000 thermoplastic piping components.

As one of the most powerful non-nuclear vessels of its type, the Oden is active throughout the Baltic Sea during winter. For the rest of the year, it serves as a research platform for Swedish polar expeditions in the Arctic. To meet the high operational demands, the Oden was designed to be highly maneuverable thanks to features like a square bow, a specific hull shape, and oversized rudders. In addition, the ship uses jet thrusters to spray high-pressure water onto the ice to reduce friction at the bow, which increases the ship's energy efficiency. Originally, the jet thrusters relied on a steel piping system to handle the high flow rates and pressures for this process. However, due to corrosion issues, replacing the system once and for all became necessary.

GF Piping Systems supplied 200 meters of DN1000 piping made of HDPE, 100 electrofusion fittings, and couplers made of PE100. Due to the tight spaces on board, using standard components was impossible, so GF Piping Systems provided engineering support to create a custom solution. In addition to the dimensioning of the pipes, this also required services such as a feasibility study, pipe stress analyses, hydraulic calculations, and analyses of flow characteristics and energy consumption.

Despite the tight spaces onboard the Oden and the system's complexity, the retrofit was completed by 14 installers in 2,000 hours, making it more cost-efficient than metal. The thermoplastic pipes are corrosion-free and, therefore, have a longer expected service life compared to metal, while smooth inner surfaces allow the same flow volume as metal pipes in larger dimensions. At the same time, GF Piping Systems' engineering services have contributed to the safe and reliable operation of the jet thruster system.

[Read more about the GF Piping Systems solutions available for marine here.](#)

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About GF Piping Systems

GF Piping Systems creates connections for life as the superior water and flow solutions provider for industries and infrastructure, enabling the safe and sustainable transport of fluids.

The division focuses on industry-leading leak-free piping solutions and engineering services for numerous demanding end-market segments. Its global sales, engineering, and manufacturing footprint reflects its strong focus on customer-centricity and innovation, and its award-winning portfolio includes fittings, valves, pipes, vaults, chambers, automation, fabrication, and jointing technologies.

GF Piping Systems has its own sales companies in 33 countries and fabrication hubs in 15 countries, which means it is always by its customers' side. Production sites in 40 locations in the Americas, Europe, the Middle East, and Asia ensure sufficient availability and quick, reliable delivery. In 2023, GF Piping Systems generated sales of CHF 2'100 million and employed 8'798 people. GF Piping Systems is a division of Georg Fischer AG (GF), founded in 1802 and headquartered in Schaffhausen (Switzerland).

www.gfps.com

Pictures



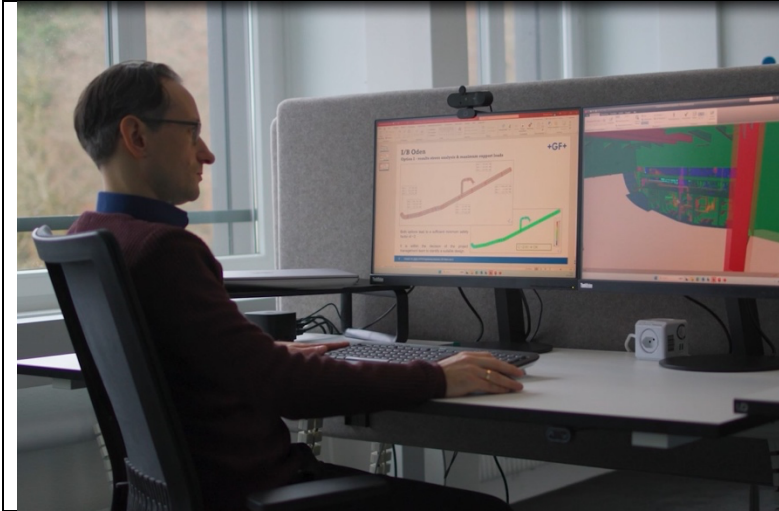
GF Piping Systems supplied 200 meters of corrosion-free DN1000 HDPE piping and 100 ELGEF Plus electrofusion fittings for the world's largest diesel-electric icebreaker, Oden.

Source: GF Piping Systems



Completed in just 2,000 hours by a skilled team of 14 installers, the retrofit onboard the Oden had to overcome tight spaces and system complexity.

Source: GF Piping Systems



Custom-engineered solutions from GF Piping Systems included feasibility studies, pipe stress analyses, hydraulic calculations, and energy efficiency optimization.

Source: GF Piping Systems