

GF Piping Systems

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ecoFIT

Plastic piping systems improve sand mining in the North Sea

Van Koeveringe Kunststoffen selected ecoFIT pipes by GF Piping Systems to convert a cargo vessel into a Trailing Suction Hopper Dredger.

An efficient ship conversion with prefabricated solutions by GF Piping Systems

Sand is an essential raw material for many industries and is used for concrete and asphalt production. Therefore, companies like Van Ouwerkerk BV have specialized in mining sand throughout extraction sites in the North Sea. In order to make the process as efficient as possible, Van Ouwerkerk uses ships with specialized technology to dredge the seabed. The Dutch company's latest addition to its fleet, the MS Zeeburg, uses the polyethylene solution ecoFIT by GF Piping Systems to provide long-lasting and corrosion-free jet lines for the dredging system.

Project background

After acquiring the MS Bente, a cargo vessel with a length of 90 meters, Van Ouwerkerk commissioned her conversion into the Trailing Suction Hopper Dredger (TSHD) MS Zeeburg. Extensive work was necessary, including hull modifications, enlarging the aft accommodations and, most importantly, installing the necessary dredging equipment. During the project, Van Koeveringe Kunststof-fen was tasked with providing piping for the dredging system and decided to implement an HDPE (High Density Polyethylene) solution by GF Piping Systems for the new jet lines. Jet lines are used to inject water into the sand in order to loosen it prior to mining. This process is also necessary to later transfer the sand from the ship's hold to an inland barge.

Selected technical solution

ecoFIT is a lightweight polyethylene piping system designed to transport water and other media, and is corrosion-free as well as UV, weather, and abrasion-resistant. As a result, it is suitable for temperature ranges between -50 °C to 60 °C and can have a service life of over 25 years, even in harsh environments. These properties, as well as the comprehensive portfolio of system components and technical support by GF Piping Systems, made ecoFIT ideal for the jet lines onboard the MS Zeeburg. In total, Van Koeveringe Kunststoffen installed about 750 meters of HDPE ecoFIT pipes and covered dimensions from d63 to d355. To make the jet lines operational, the pipes were connected to pumps and implemented in the dredging system for the seabed and in the cargo hold.

Achieved improvement

After equipping more than twenty ships with solutions by GF Piping Systems, Van Koeveringe Kunststoffen was able to quickly prefabricate various pipe sections, including custom parts for the tight spaces on board. At the same time, ecoFIT now provides a number of important benefits for the mining company Van Ouwerkerk BV: As jet lines are constantly in contact with seawater, the HDPE pipes provide the necessary corrosion and temperature-resistance, allowing the MS Zeeburg to mine sand and seashells with a dredging system that is lightweight, long-lasting, and cost-effective. Throughout the project, GF Piping supported Van Koeveringe Kunststoffen with technical support in areas such as bracket spacing and certification requirements.

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The HDPE ecoFIT pipes onboard the MS Zeeburg are part of the jet lines that are necessary for the mining process.



In order to speed up the installation, many pipe sections were prefabricated and custom-made to meet the needs of the customer.

Customer benefits

- The ecoFIT piping system is a lightweight and corrosion-free alternative to metal and is therefore ideally suited for seawater applications such as jet lines
- ecoFIT comprises complete and fully compatible solutions that simplified the planning phase and sped up the installation on board the MS Zeeburg
- GF Piping Systems offered technical support for Van Koeveringe Kunststoffen, from the planning phase to prefabrication, customization, and on-site assistance

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