

# Ensuring safe, hybrid passenger travel in the north sea

## RESULTS

- Provided flexible, modular system architecture for rapid conversion
- Pre-assembled for simple, streamlined installation
- Optimized operations with sophisticated features and functions
- Ensured quality components enabling reliable in rugged conditions



## APPLICATION

Hybrid mudflat taxi

## CUSTOMER

Watten Fährlinien GmbH, Husum, Germany

## CHALLENGE

From Wittdün on Amrum to Wyk on Föhr or from Dagebüll to Pellworm, the Liinsand mudflat taxi makes it easier for residents faced with deteriorating medical care on the German Islands of the North Sea to reach faraway doctors. With no fixed route, the number of passengers and length of travel determines the fare per person.

“Here on the coast, we are facing a slump in local doctors and midwives. In some cases, residents have traveled over two hours to see a doctor, something set to change with the mudflat taxi,” says Sven Jürgensen, CEO of Watten Fährlinien GmbH. An experienced seafarer and ship operations technician, Jürgensen—together with owner Dirk Lehmann—backed the Wattentaxi mudflat taxi project right from the start.

“Liinsand hails from Husum, once again making the North Frisian district capital the starting point for regular trips to destinations in the mudflats,” adds Jürgensen. With a low draft of 1.35 meters, the Liinsand can be used no matter the tide, the only exceptions being extreme winds or ice drift. Measuring 18.70 meters in length and 7.2 meters in width and outfitted with a hybrid gearbox, the mudflat taxi indicates the emissions released during the trip within the cabin.

“At the port, the ultra-quiet ‘Liinsand’ is operated emission-free with battery power, with modern, filtered diesel engines propelling the mudflat taxi with minimal emissions at sea,” states Jürgensen. “While other ships are only used seasonally, we run all year with two crews.”

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With the importance of emissions released by seafaring ships growing with increasing traffic, Lehmann and Jürgensen wanted to set an example showing that other options are available. The decision was made to convert the Liinsand into a low-emission, hybrid ship with the diesel engine and electric motor providing complimentary support—as in the case of hybrid road vehicles. Jürgensen looked for a shipyard able to implement the plans as desired, partnering with Loça Mühendislik in Turkey.

### SOLUTION

As a catamaran-type ship outfitted with a hybrid gearbox and emission control for the diesel engine—and space for a “busload” of up to 50 passengers—Emerson products were the obvious choice.

“You know you’re getting quality,” states Jürgensen. Since installation, the Emerson products have provided reliable control in rugged, often adverse weather conditions. The only time the crew was unable to disembark was during the heavy frost late one February when the ship was stuck between ice floes.

The new mudflat taxi features two redundant hybrid diesel propulsion systems with two propellers, two helms, and two battery systems, each lasting 50-kilowatt hours. Choosing the Marex OS III remote control system, Jürgensen and his crew relied on the proven marine products from the AVENTICS™ portfolio. A modular unit with an integrated bus connection, the electrical remote uses a control device on the propulsion engine speed governor, while the gearbox is controlled mechanically.

Consisting of a control signal generator and MPC, the components are connected via CAN bus data lines with the bus protocol ensuring reliable control. Safely and efficiently operating controllable pitch propellers and jet propulsions, the Marex OS III control is found on passenger ships, utility vessels, freight carriers, and motor and sailing yachts of all kinds and sizes.

**“You know you’re getting quality.”**

**Sven Jürgensen**

CEO of Watten Fährlinien GmbH



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