CASE STUDY

ELHAND Transformatory for the Marine Industry

CLIENT

Damen Shipyards Group - a global leader in the shipbuilding industry, synonymous with innovation and reliability.
The company designs and builds advanced vessels, including modern harbor tugs.

CHALLENGE

Providing a stable power supply for ASG Tug-type vessels and similar units with a bollard pull of up to 50 tons, designed for precise operations in congested harbors.
This compact vessel is capable of towing ships many times its size, while its advanced control systems ensure precision down to the meter—and sometimes even the centimeter.

Project Requirements

- Maximum power density within extremely limited engine room space
- High mechanical resistance to continuous vibrations and shocks
- Full system reliability under dynamic loads

SOLUTION

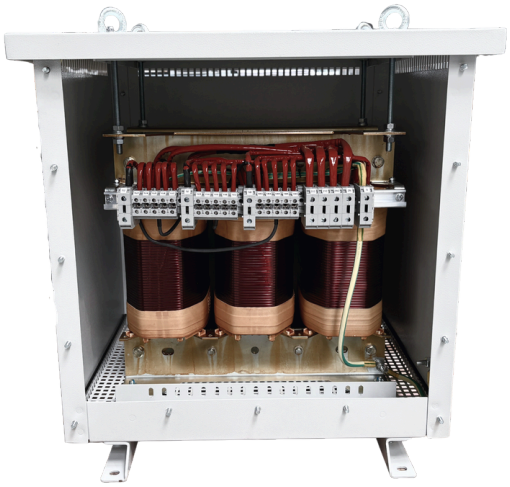
Instead of standard magnetic components, a dedicated solution was designed: an isolation transformer combined with an integrated GRID CONVERTER OUTPUT SET, where the transformer and filter operate in full synergy.

ET3oM 60 kVA – Isolation Transformer

- Ensures safe and stable separation of the onboard network from the power source
- Provides galvanic isolation, protecting control and drive systems from surges, disturbances, and leakage currents
- Maintains stable power parameters even in harsh operating conditions
- Guarantees operational continuity and reliability-both during port maneuvers and open-sea operations

EF3LCM - Sine Wave Filter

- Precisely reduces harmonic distortions generated by VFD drives
- Improves power quality
- Minimizes the risk of system instability



ET3oM 60 kVA Isolation Transformer

RESULTS

- The majority of tugboats built by Damen have been equipped with ELHAND isolation transformers and GRID CONVERTER OUTPUT SETS, ensuring stable and reliable system power supply
- Over 16 years of continuous engineering collaboration-from concept to implementation in demanding marine environments
- Hundreds of units delivered and operating reliably every day on Damen vessels worldwide