# AMADEUS NOVA, DIESEL ELECTRIC PASSENGER VESSEL


| | |
|---|---|
| **Fleet:** | Lüftner Cruises GmbH |
| **Shipyard:** | TeamCo Shipyard |
| **Designer:** | Vahali |
| **Dimensions:** | 135 m x 11.45 m |
| **Bow Thrusters:** | 1 CJ-1200 + KA 390 kW @1 800 rpm |
| **Thruster Performance:** | 4 Veth L-drives, azimuth thrusters, type VL-450-CR |
| **Engines:** | 4 PM motors |
| **Power:** | 400 kW @ 1200 rpm |

VETH PROPULSION BY TWIN DISC

# AMADEUS NOVA, DIESEL ELECTRIC PASSENGER VESSEL

MARINE

## Twin Disc products and experience assist in fleet modernization.

Veth Propulsion successfully overcomes challenges in diesel direct to diesel electric thruster conversion.

### Situation

The *Amadeus Nova*, a sophisticated diesel-electric passenger vessel and the flagship of its fleet was renowned for its luxury and innovation. It was designed to deliver unparalleled comfort and efficiency and was a benchmark in modern maritime travel. As part of a fleet modernization program, the *Amadeus Nova* was slated for significant upgrades, with one critical enhancement being the transition from diesel direct-driven thrusters to diesel-electric thrusters. This shift was essential to improving efficiency, reducing emissions and meeting stringent environmental regulations. The vessel required advanced, reliable and highly efficient electric thrusters capable of seamlessly integrating with its existing power systems to achieve these goals.

### Implication/Problem

The transition from traditional diesel direct-driven thrusters to diesel-electric thrusters posed several technical and operational challenges. A key priority was selecting a propulsion system that matched and exceeded the existing setup's performance. The new thrusters needed to integrate with the vessel's power management system, which required precise control and efficient energy utilization. Permanent magnet (PM) motors emerged as the optimal choice due to their superior efficiency, compact design and reliability. However, successfully integrating these advanced motors demanded meticulous planning to ensure they could meet the complex power requirements and operational demands of a passenger vessel like the *Amadeus Nova*.

### Solution

To meet the *Amadeus Nova*'s stringent requirements, we supplied four Veth L drive type VL-450 counter rotating thrusters for the rear and a compact jet type CJ-1200 thruster for the front, all equipped with state-of-the-art permanent magnet (PM) motors. The Veth L drive thrusters provided robust and reliable propulsion with exceptional maneuverability, while the compact jet thruster ensured precise control for navigation in tight spaces and harbors. The integration of PM motors delivered several key advantages, including full power management capability and a significant reduction in the number of generator sets needed to achieve the same power output. This streamlined the vessel's power system efficiency while reducing fuel consumption and emissions for a more environmentally sustainable operation.

### Results

The *Amadeus Nova*, equipped with its new diesel-electric thrusters, was successfully commissioned and serviced by Lüftner Cruises GmbH. The upgraded propulsion system performed as expected, delivering efficient and reliable operation. Integrating the Veth L drive and compact jet thrusters improved maneuverability and reduced fuel consumption, aligning with the company's sustainability and operational efficiency goals. This successful implementation enhanced the ship's performance and underscored the viability of electric propulsion systems in modern passenger vessels, setting a benchmark for future advancements in the industry.

**Veth thrusters deliver essential benefits:**

- 360 degrees full thrust, thus optimum maneuverability
- Higher efficiency as a result of propeller design and angle
- Lower fuel consumption over total speed range
- Possibility for flexible suspension, which provides better insulation from noise and vibration
- Compact, easy-to-install construction allows for more room for passengers and cargo
- No separate reduction gearbox is needed from the engine output to the thruster input
- Safer, through shorter emergency stopping distance and improved maneuverability
- Possibility to sail in complete silence with added batteries

VETH PROPULSION BY TWIN DISC