

Economical and agile offshore construction ship

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The new multipurpose offshore construction vessel from Toisa is being equipped by Siemens with an efficient drive and power generation system that ensures maximum flexibility and availability. Picture (computer simulation): Sealion Shipping Ltd. Credit: Sealion Shipping Ltd.

Siemens is currently installing the power supply and propulsion systems into a new multi-purpose offshore construction ship for Toisa Ltd. The

ship, which is being built by the Korean company Hyundai Heavy Industries Ltd., will be used for a variety of offshore construction tasks at depths of up to 3,500 meters. Among other things, such assignments require the ship to be very maneuverable. This is why Siemens is supplying it with a diesel-electric propulsion system that enables the crew to selectively operate the individual propellers with great precision. Siemens is also providing the ship with a power supply and energy management system that helps to optimize the vessel's fuel consumption.

Offshore construction ships are used for a variety of tasks, such as the building of underwater oil and gas extraction facilities, the operation of remote-controlled deep-sea submersibles, and the installation of pipes and electricity cables on the sea floor. To conduct such work, the ships have to be very precisely positioned and be able to remain stationary for a long time. Toisa wants the new multi-purpose ship to set new standards for maneuverability as well.

The ship has a variety of different propulsion systems: rear propellers, bow thrusters, and retractable Z-drives. These systems are driven by a total of five 3.4 megawatt and two 2.5 megawatt electric motors. A diesel generator produces the electricity for the motors. Siemens provided the vessel with the diesel-electric Siship Drive LV, whose chief characteristic is the fact that all of its components (the diesel generator, the motors, and the frequency converters for speed regulation) are coordinated with one another. This allows the individual drive units to be very quickly operated so that the ship becomes even more agile. Moreover, an integrated drive system always operates in an optimal range. This increases the efficiency of the overall system, and thus its energy efficiency as well.

The ship's power supply is also designed for optimum energy efficiency. The ship is supplied with electricity by six diesel generators with an output of four megawatts each. Siship Power MV feeds the electricity

into the ship's medium-voltage network and continually adapts the diesel generators to the vessel's actual energy demand. This adjustment of the generator output is a key means of saving fuel, especially for construction [ships](#), which consume much more electricity while traveling than during the actual work time, when they remain stationary in one place. Siemens also created the ship's power management system, which ensures that all of the electricity consumers onboard the vessel have a secure [power supply](#).

The Siship platform encompasses a variety of special solutions for the drive systems, power supplies, and automation of commercial shipping. One of the platform's major features is that all of the components are especially designed to handle the rough conditions on the high seas.

Provided by Siemens

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