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VDMA-Special
German Marine Equipment
Electric Voith Schneider Propeller (eVSP)

Direct electrical propulsion for enhanced service operation vessels

In harsh sea conditions such as those prevailing in the North Sea, the maintenance of offshore wind equipment is a demanding task. Sophisticated service operation vessels (SOVs) enable safe work in the wind farms of the North Sea, even under adverse conditions.

The rough conditions at sea place high demands on materials and components. In the offshore wind industry, reliable workboats such as service operation vessels (SOVs) are essential, both for safety and the commercial success of such facilities.

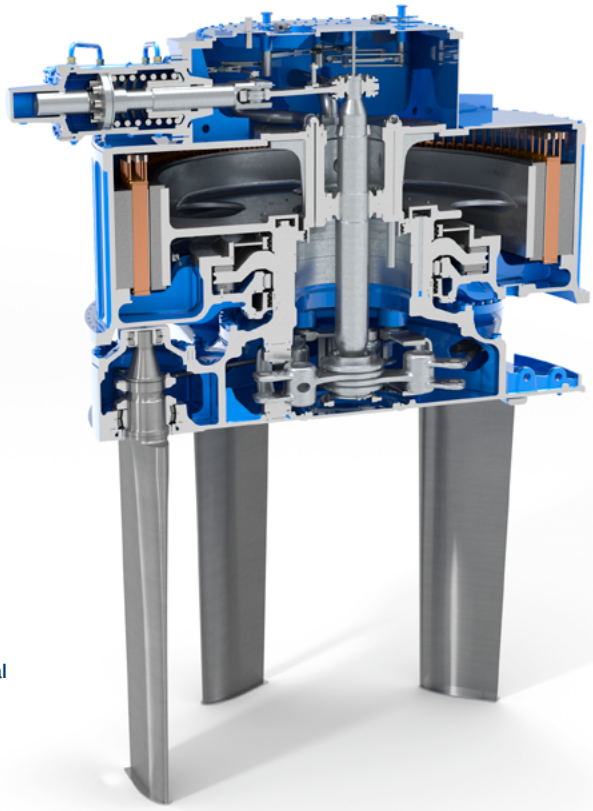
Equipped with state-of-the-art navigation technology as well as powerful drive systems, the vessels can operate safely in the wind farms of the North Sea even under challenging conditions. Up to now, the SOVs have mostly been powered by diesel engines.

However, this significantly reduces the overall eco-balance of the wind turbines. It is now necessary for a consistent ecological setup to include the drive systems of the SOVs. With the introduction of the electric Voith Schneider Propeller (VSP), the German technology group Voith is making an important contribution in this field.

The electric Voith Schneider Propeller

The new electric Voith Schneider Propeller (eVSP) is the latest development in the company's strategy of pushing ahead with the continuous electrification of its proven drive technologies. In this way, Voith is meeting the growing demand for resource-saving and energy-efficient mobility as well as future-oriented mobility concepts.

Among the advantages of the new eVSP are high efficiency and reduced complexity, since the permanent-magnet synchronous motor is already integrated into the propeller. The complete omission of gears reduces noise to a minimum and frees up critical space on the ship. The drive system combines the technology of the VSP with more than a decade of electrical



The newly developed eVSP impresses with its resource-saving operation and minimal noise emission.

know-how from the Voith Inline Thruster (VIT). “With the electric Voith Schneider Propeller, we are making an important contribution to the electrification of the driveline in marine applications and thus to even more resource-saving shipping,” said Dr Dirk Juergens, vice president of Research & Development for Marine Applications at Voith. “The new eVSP was developed for this purpose for all applications involved in the mobility revolution, such as offshore vessels, tugs, passenger ships and ferries.” In addition, the eVSP offers ship operators future security through a high degree of flexibility in the choice of power generation as well as low maintenance requirements, thanks to its robust design. The follow-up costs in operation and maintenance are thus significantly reduced.

Further developed functional principle of the eVSP

The new eVSP uses a permanent magnet synchronous motor as its main drive, which is fully integrated into the VSP.

In addition, no gears or transmissions are required, enabling stepless operation and virtually loss-free conversion of the electrical drive power with dynamic response characteristics. Furthermore, the eVSP has the benefit of low weight and can be mounted without any shaft train restrictions. The eVSP offers the same advantages as a conventional VSP. Its core principle the combination of drive and control in one unit – has been continuously developed and perfected over the last 90 years. Ships with VSP designed for offshore wind have been proven to maintain their set position precisely, even at wave heights of up to 4.5m. Furthermore, the VSP is the only propeller in the world that can actively reduce the rolling motion of ships by up to 90% through the use of Voith Roll Stabilization (VRS). This leads to a significant increase in comfort and safety on board.

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