



The new wave of motion compensation

Safe and efficient installation in even the most challenging conditions

Wind farms are an essential part of powering the future, but installation can be challenging as the best locations for wind farms are often at sea. If the sea is rough, it can put a stop to installation entirely, or even damage expensive equipment. Van Halteren Technologies, together with Seaway 7, has engineered, supplied, commissioned successfully a motion compensator system which ensures safe and efficient installation in even the most challenging conditions.

Improving sustainability is one of the biggest challenges facing the world today. The need for energy will continue to grow as the global population is consistently rising, and the energy consumption

per household and per industry is increasing. Due to changing geopolitical circumstances and In order to protect our environment, and our future, we need to produce as much of this energy as possible in a sustainable way. Wind farms are one of the most reliable ways to produce renewable energy, and energy providers are always looking at the best ways to build install them in optimal locations.

These locations are often at sea, and the challenge is that the best places for them frequently experience high-speed winds, which makes the installation process more difficult. The vessels which install the monopiles for offshore windfarms need to be able to compensate for motion, as it's crucial that the monopile is installed with high accuracy and stability.

VHT has developed, supplied and commissioned for Seaway 7 the optimal solution. Usually, vessels built for installing monopiles have two systems to reduce potential movement at sea – a dynamic positioning (DP) system to keep the ship in place, and a motion compensated system to control the movement of the monopile gripper. VHT, together with Seaway 7, are proud to have succeeded, following a multi-year innovation program, including extensive data collection during numerous monopile installation campaigns, in a way to install monopiles on DP. With this result, ways are found to effectively integrate two separate systems, which resulted in a number of significant advantages.

Innovation through collaboration

The integration between the motion compensation on the gripper and the DP is unique, and the success of this world-first is thanks to the collaborative approach between VHT and Seaway 7.

“We worked intensively with Seaway 7,” says Peter Doesburg, Sales Manager for VHT, “as we needed to know everything about how the vessel behaves. This is what influences the gripper and the compensating systems, and everything needs to work together to make it as efficient as possible.

“VHT engineered, supplied and commissioned the complete compensating system, which contains next to the hydraulic power unit, manifolds sensors and controls also the four hydraulic cylinders, which sit around the gripper at 90° angles from each other. These are motion compensated, and they physically move the monopile to keep it steady and stable in unstable environments. However, the innovation came with control system, and the way everything was integrated with the DP.

“Seaway 7 are renowned for innovation, and for using technology to do things in a safer, better and more efficient way,” adds Peter. “They consider VHT as the ideal partners, as we also pride on ourselves in combining an innovative approach with our engineering expertise to achieve the best results. We’re proud that

together, we built the best and only monopile installation system in the world that’s integrated in this way.”

The first of many

While the system has proven to be successful and is unique now, it could benefit the entire industry when similar systems are installed on other vessels, which will allow them to be operational on more days throughout the year, so increases the number of wind farms that can be installed.

It’s more essential than ever to reduce costs too, as the wind energy industry is no longer subsidized. Through the increased efficiency combined with reliability and uptime, this system makes it less expensive to install wind farms at sea.

“The system was developed for the Seaway Strashnov vessel over several years,” explains Peter. “A first version was integrated by 2019, with successful tests carried out after that. An updated system was installed earlier this year and used to successfully install piles on multiple projects since. Seaway 7 is very enthusiastic about this solution and the opportunities it presents.

“Until now, DP systems and motion compensators were separate systems, and through this integration and innovation Seaway 7 and VHT have provided something which changes things for the better. It also helps to reduce the costs of wind farms, which means in the future it will be possible to build more, which in turn will help us all live in a more sustainable way.

