

IHC EB Technology at Offshore Wind 2009

From multi-million pound plans for a new family of offshore wind vessels and a blade installation system to cable laying equipment, IHC Engineering Business (EB), and its parent company IHC Merwede, will have much to discuss with visitors at the European Offshore Wind 2009 Conference and Exhibition in Stockholm from 14 to 16 September 2009.

EB has a growing order book and demanding project requirements for plough systems for use in the offshore wind sector. A new plough, the Sea Stallion 433, has been designed for burial of power cables up to 3m in hard seabeds in one pass; and the Sea Stallion 3, now capable of working in 2,000m of water, features EB's proven share design, which allows 3m burial in a wide range of conditions, whilst minimising residual tension in the installed cable.

The IHC Merwede offshore wind vessel designed with jacket installation in mind provides a stable, cost effective and efficient means of installing jacket foundations for future offshore wind farms. The floating system is independent of water depth and seabed conditions so avoids the need for time-consuming jacking operations. Installation of jacket piles is achieved by the use of an onboard mobile crane. In the present configuration the concept allows the load out of four jackets simultaneously.

To allow rapid mobilisation and deployment, the jackets are secured to the vessel using hydraulic seafastenings, and are transferred to and from their stowage positions by two mobile lifting gantries. Gantry movement is achieved using standard skidding units.

The second vessel designed for the offshore wind market is the turbine installation vessel. This is a self-propelled jack-up vessel with dynamic positioning capability, and will be able to transport and install multiple fully assembled wind turbine generators. The vessel incorporates a rotating installation system that is able to lift and transfer wind turbines from their stowage positions to their offshore foundations, safely and efficiently. Turbines are then seafastened using radial, hydraulic clamping systems.

The third concept is for a dedicated blade installation system. Blade installation is a critical phase of offshore wind construction, due to the sensitivity of the lifted blade to wind, its vulnerability and the accuracy required to properly align the blade and hub flanges.

The Blade Installation System has been developed to improve the safety and efficiency of blade installation operations, and can be used in conjunction with a wide variety of installation vessels and techniques.

Ideally the system is mounted onto a tower and loaded with blades at port, with the tower and blades transported vertically to site for installation. Alternatively blades and towers can be transported to site and the system mounted around the tower and loaded with blades on the vessel's deck, prior to installation to the foundation.

The system is secured to the tower using two sets of friction clamps. The clamps are linked with hydraulic cylinders that create a walking action to drive the carousel upwards and downwards as required. Each of the three blade grippers features hydraulic actuation to allow precise alignment of the blades within the hub.