

# Highwind

## Boom lock - 2015

Higher safety and lower costs for the installation of wind turbines at sea. Boom Lock© can hoist safely in winds up to 15 m/s, which is a radical improvement compared to 10 m/s using a conventional offshore crane.



### Specifications

- ✓ Model based engineering
- ✓ Simulation
- ✓ Fast commissioning time

In commission of High Wind NV Bakker Sliedrecht took care of the engineering and automation of the electric part of the revolutionary Boom Lock©. Boom Lock© is a system that is mounted on an offshore crane. It is designed to reduce unwanted movement of the crane hook and the payload in such a way that installation time can be drastically reduced. Boom Lock© can hoist safely in winds up to 15 m/s, which is a radical improvement compared to 10 m/s using a conventional offshore crane.

The use of Boom Lock© increases safety during the installation of the wind turbines as the heavy payloads' uncontrolled movements in windy conditions are reduced. This results both in considerable cost savings and under the form of reduced cost for installation vessels, installation crews and related costs, as well as increased income due to earlier completion of the wind farms.

The three software systems Bakker Sliedrecht and Highwind NV designed are specifically developed for the Boom Lock©. The systems work together to hoist loads safely and efficiently:

### Software system 1: Collision and Damage Avoidance System

The Collision and Damage Avoidance System (CoDAS) is a safety system that guards the position of the crane, the Boom lock© and the payload.

### Software system 2: Boom lock Control System

The Boom lock Control System controls all movements of components of the Boom Lock© on the offshore crane.

### Software system 3: Control Interface System

The Control Interface System (CIS) assists the crane operator in transporting loads. When using a crane equipped with Boom Lock©, nine drives must be controlled at exactly the same time in order to maneuver pay loads. Thanks to CIS, the crane operator only needs one joystick to make that possible.



In 2014 High Wind developed a physical and realistic simulation model of the offshore crane, Boom Lock© and hoist operation in close collaboration with Controllab. Bakker Sliedrecht used the same model to develop and test the automation.

The successful collaboration between High Wind, Controllab and Bakker Sliedrecht enabled a quick delivery time on both engineering and automation. Bakker Sliedrecht started the project in September 2014 and the first system was commissioned in January 2015 by making use of the Model Based Engineering method.

Johan Heiler, General Manager from High Wind says: “The collaboration between Bakker Sliedrecht, Controllab and High wind regarding the controls of the Boom Lock© system acts as an example for the future of software development in the offshore industry. By combining the knowledge and skills of the three companies a better and safer system was created efficiently. This did not only resulted in lower waiting costs during the trial period, but also reduced the risk on damage or time loss by significantly reducing software bugs. We are convinced that this method will become the standard in the coming years, and look forward to working on future projects with Bakker Sliedrecht”.