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Press information

Spectacular single lift of RL-K 7500 subsea crane at Liebherr test bed in Rostock

Rostock (Germany) November 2014 – On the premises of Liebherr in Rostock a remarkable single lift of the new RL-K 7500 subsea crane recently took place in the course of its loading for shipment to Asia. The lift was executed by four Liebherr cranes.

In the beginning of September, two LHM 600 mobile harbour cranes and two LG 1750 lattice boom mobile cranes lifted the subsea crane onto a transportation device. Since it was the first time that four cranes were involved in a single lift at the test stand in Rostock a lot of planning and preparation work was required. Only the assembly of the mobile cranes took approximately two days. Besides the crane's dead weight of 665 tonnes a further challenge of the approximately 90 minutes lasting lift was the loosening of about 100 bolts on the slewing ring.

Currently, the RL-K 7500 is waiting for its scheduled delivery mid-November at the pier of the Liebherr factory in Rostock. The RL-K 4200, another model of Liebherr's series of knuckle boom cranes, will be delivered to Daewoo Shipbuilding & Marine Engineering Co. LTd. (DSME) together with the RL-K 7500. DSME plans to equip several of its ships with a set of Liebherr cranes consisting of one RL-K 7500 and three RL-K 4200.

The new subsea crane with knuckle boom represents a convenient solution for subsea operations. Together with the crane's prototype the above mentioned RL-K 7500 is already the fourth model to be completed. It features impressive technical figures, being able to lift up to 300 t in the air and handle loads down to a water depth of 3,600 m. The maximum rope diameter is 82 mm, the maximum overturning moment of the crane is 75.000 kNm. Depending on customers' specifications, the boom configuration allows for working radii of up to 50 m.

One vital advantage of the crane's knuckle boom is that loads can be lowered to the water surface with a short rope length between crane boom head and water line.

Furthermore, the crane is equipped with a number of state-of-the-art hydraulic, electric and electronic features and functions, some of which were submitted for patent by Liebherr, e.g. Heavetronic®, Pactronic® and the innovative winch system.

Heavetronic® – Liebherr Active Heave Compensation-System (AHC)

Based on sophisticated Motion Reference Units (MRUs), i.e. sensors designed in-house to recognise and predict the vessel's motion, the AHC system compensates this movement. In order to meet the high power demands of the AHC the innovative hydraulic hybrid drive system Pactronic®, originally developed for Liebherr mobile harbour cranes, was specially adapted for subsea applications. Pactronic® is characterized by an additional energy storage device. A hydraulic accumulator supplements the fluid pump in delivering power to the system. It serves as a pressure storage reservoir incorporating a gas in conjunction with a hydraulic fluid. Energy is stored in this compressed gas to be released upon demand.

The revolutionary AHC system is fully integrated in the proven Litronic® system. One of its most important features is its self-learning function. It automatically recognises the vessel's motion and adjusts itself according to this information. Hence, the system does not need to be manually adjusted and is independent of weather conditions. Up to 70 % of the power required to operate the AHC system is currently obtained from Pactronic®. This means that the hybrid drive system provides a maximum power of almost 4 MW.

Innovative winch technology

In order to ensure optimised rope guidance, the crane has a patented horizontal winch shifting system. It guarantees the ideal fleet angle of the rope under all load conditions in both hoisting and lowering operations.

A further innovation is the vertical winch frame lifting system, which is also patented. Two hydraulic cylinders allow for the adjustment of the lifting height without moving the drum of the hoisting winch. Due to this innovative design of the winch unit, which is based on many years of experience and profound knowledge of Liebherr crane

technology, wear of the main wire rope is minimised, thus significantly extending its service life and reducing life cycle costs.

Easy adjustment to customer requirements regarding load and water depth can be made by exchanging the lebus shells and by adapting the width of the winch to the actual rope diameter. Consequently, the customer is not obliged to change the complete hoisting winch.

With the RL-K 7500 Liebherr offers an innovative crane concept for subsea applications. The RL-K 7500 can be rated both as general purpose offshore crane and as heavy lift crane, being able to hoist loads weighing up to 300 t. It can thus be installed on board drill vessels and heavy lift vessels. The knuckle boom is designed for use in hazardous areas. The crane can additionally be equipped with an Arctic temperature package allowing for operation at temperatures down to -40 degrees Celsius.

Captions

liebherr-rlk7500-single-lift-rostock.jpg
Single lift of the RL-K 7500 subsea crane with four Liebherr cranes involved.

liebherr-rlk7500-subsea-crane.jpg
RL-K 7500 subsea crane in operation.

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