

## **First trial - Liebherr 1000 EC-B 125 Litronic Flat-Top crane erects wind turbine**

- Largest, most powerful tower crane in the Liebherr product portfolio
- 125 tonnes lifting capacity
- Large crane for wind turbines and plant engineering

**Biberach / Riss (Germany), November 2014 – The new 1000 EC-B 125 Litronic was recently used to erect an Enercon wind turbine in Wardenburg in the Rural District of Oldenburg. With a lifting capacity of 125 tonnes, this Flat-Top crane is the largest crane in the Liebherr Tower Cranes Division product range. First unveiled at the Bauma 2013, the largest trade fair for construction machinery in the world, the crane attracted a great deal of interest.**

The 1000 EC-B was first used in North Germany. Near Oldenburg, in Wardenburg, the Flat-Top crane was used to erect a new Enercon E-101 wind turbine with a hub height of 135 m. Customers have recently reported good experience with erecting wind turbines using the 630 EC-H 70 Litronic crane which has been adapted to this application. Liebherr tower cranes have already erected a very large number of wind turbines.

The lifting capacity of the new crane is 125 t in the six-line version or 100 t in the four-line version. The Flat-Top crane can reach the required lifting height of 149 m for the project with a single guy on the tower of the wind turbine. It can operate in free-standing mode for such projects up to a lifting height of 108 m.

### **Logistic benefits for transport and erection**

Wind turbines in areas with poor wind conditions are not generally used in large wind farms and instead are erected in wooded areas or areas with difficult access. The use of this tower crane is particularly beneficial for these locations. Both the crane and the wind turbine can be erected on a comparatively small area.

The area requirement for erecting the complete Flat-Top crane is approximately half of the normal standing area of other crane systems. In addition the logistics required to transport the 1000 EC-B 125 Litronic are much less than comparable crane systems since the various components are supplied in smaller packages. The jib parts of the large crane can also be transported inside the tower elements.

An adjustable undercarriage with a support base measuring just 18.0 m x 18.0 m was designed for the 1000 EC-B specially for Enercon. The support struts can be adjusted on this special undercarriage from the 45° position by +/- 5° or +/- 10°. The support base is then 20.4 m x 15.2 m. This means that the crane can be moved closer to the object when there is little space available. For the job near Oldenburg the 1000 EC-B 125 Litronic was used on the undercarriage measuring 18.0 x 18.0 m.

The flagship of the Liebherr Flat-Top crane range was erected for this project on the 1000 HC tower system with conical bolt connections. The monoblock tower sections with system dimensions of 3.40 m x 3.40 m and a length of 5.80 m allow high free-standing erection heights with short erection times.

Initially the crane was erected using a mobile Liebherr LR 1200 crawler crane to a basic hook height of 38 m. After this the crane climbed itself to a free-standing hook height of 108 m. In the second stage the Flat-Top crane was guyed to a level of approx. 87 m using the wind turbine tower. The guying solution patented by Liebherr was used to securely anchor the crane to the tower. In principle the 1000 EC-B 125 Litronic can achieve a free-standing hook height of approx. 110 m.

After guying the tower the 1000 EC-B 125 Litronic climbed quickly and safely using the completely new climbing equipment in stages of 5.8 m to the required final hook height of 149 m for installing the nacelle and the rotor blades.

The locations chosen for wind turbines generally have harsh wind conditions which can adversely affect cranes. One specific benefit of tower cranes is their operational safety in wind speeds of up to 18 m/s. Only when the wind reaches a speed of 120 km/h or more, the jib has to be released to turn freely.

The infinitely adjustable crane drive units also ensure high working speeds whilst MICROMOVE ensures that concrete rings, nacelles and rotor blades can be positioned and set down with millimetre precision. The very long rotor blades can also be positioned with millimetre accuracy since swinging movements of the attached components are prevented.

The crane driver has the perfect view at eye level with the nacelle. This makes it easier to position the rotor blades precisely and safely using the trolley jib.

"We are very satisfied with the first job completed by the new crane," said Ludger Janssen, Managing Director of Energieanlagenmontage GmbH at ENERCON. "The 1000 EC-B 125 met all our expectations with its première. It means that we now have another piece of special equipment which will make it easier for us to erect wind turbines in constricted locations."

The 1000 EC-B 125 Litronic Flat-Top crane is also ideal for jobs in power plants and plant engineering.

### **Captions**

liebherr-flat-top crane 1000 ec-b-Wardenburg-1.jpg

1000 EC-B 125 Litronic flat-top crane erecting an Enercon wind turbine with a hub height of 135 metres.

liebherr-flat-top crane 1000 ec-b-Wardenburg-2.jpg

New design: 1000 EC-B 125 Litronic on an adjustable undercarriage.

liebherr-flat-top crane 1000 ec-b-Wardenburg-3.jpg

Assembling the nacelle at a massive height.

liebherr-flat-top crane 1000 ec-b-Wardenburg-4.jpg

Climbed to a hook height of 149 metres with just one guying

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