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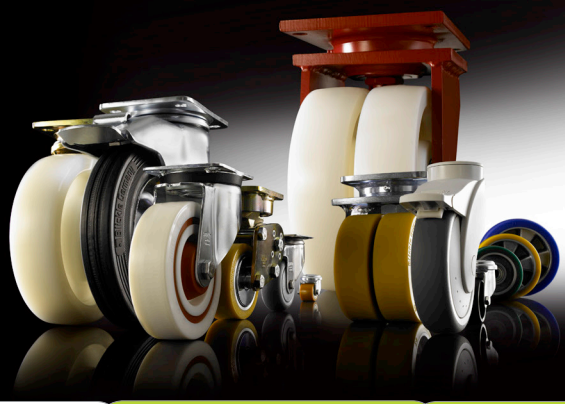
Blickle®

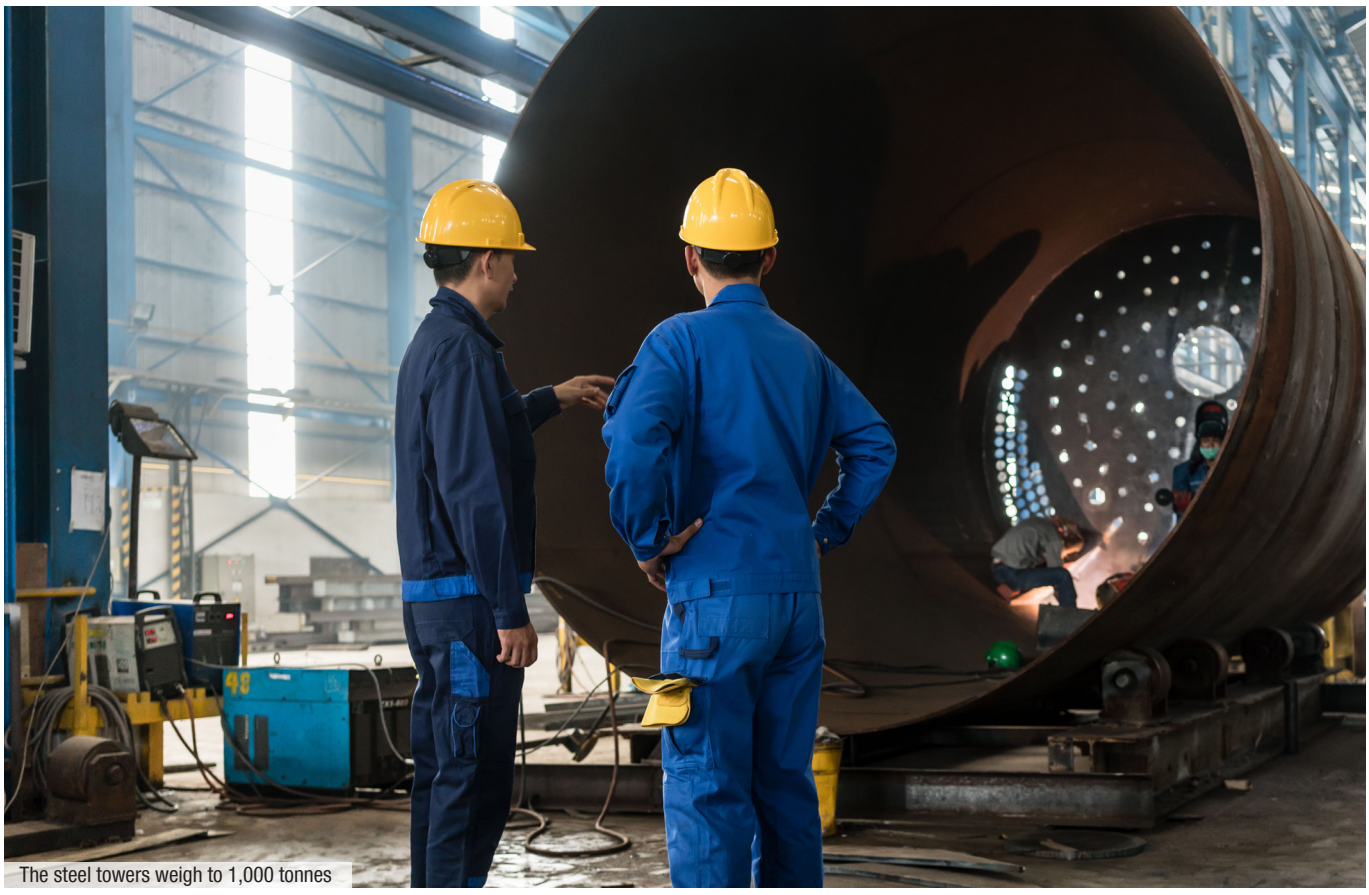
SUCCESS STORY



Heavy duty drive roller with Blickle Extrathane® polyurethane tread

STHN 620x1000/180-1000-937434

Vibration-free rotation, even under heavy loads



The steel towers weigh to 1,000 tonnes

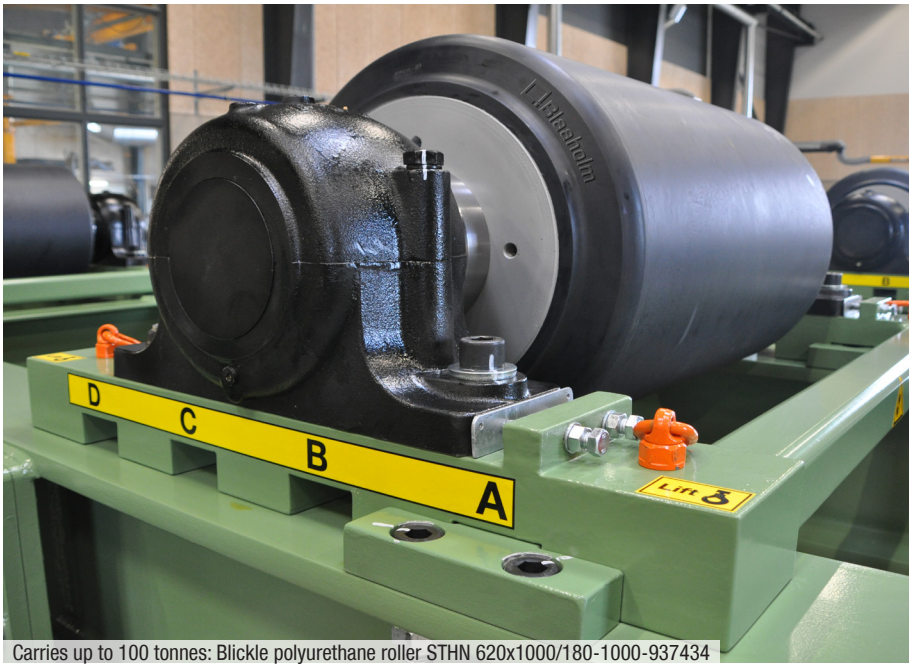
The customer

... is a Danish company which was established in 2005. The company provides a wide variety of solutions for the wind power industry, e.g. welding systems and handling facilities for the manufacture of turbine towers and other wind power components.

The challenge

Wind turbine towers are manufactured by cutting steel plates into segments, rolling them and welding them together. Turbine towers weigh around 1,000 tonnes. During the welding process, the tubular segments are placed on rotators which turn the individual segments so that the parts can be welded together.

In the past, steel wheels were used as rotators due to the high load bearing requirements. The rigid steel wheels caused vibrations during the rotation of the tower, which had a negative impact on the weld seams. This was down to the poor surface quality and lack of roundness in the bent tubular sections.



Carries up to 100 tonnes: Blickle polyurethane roller STHN 620x1000/180-1000-937434

To combat the vibrations, manufacturers began using wheels with steel wheel centres or cast wheel centres and a polyurethane tread. In order to achieve the required load capacity, at least two wheels were required on an axle. As the weight of the tubular segments increased, the required load capacity could only be achieved by placing four wheels next to one another. The disadvantage of this design is that placing four wheels next to one another puts an enormous load on the axle. Because of this, a significant axle diameter is required to prevent the failure of the axle.

Product advantages and technical information STHN 620x1000/180-1000-937434

- Very high load capacity of 100 tonnes per roller
- Optimal distribution of forces over the wheel axle makes it possible to reduce the axle diameter
- Good vibration absorption due to the Blickle Extrathane® polyurethane tread

The customer was looking for a new solution with only one polyurethane wheel in order to cut material costs and achieve even higher load capacities.

Our solution

Blickle's engineers worked closely with the customer to develop a roller with a load capacity of 100 tonnes - an improvement of 25 per cent compared to using four individual wheels. The stable steel wheel centre is reinforced with two centre bars in the interior of the roller body. The special shape of the wheel centre distributes the load in the vicinity of the bearing locations on the outside of the wheel unit, significantly reducing the amount of stress in the wheel axle. This allows the customer to reduce the axle diameter and reduce its material costs while increasing the load capacity of the unit.

The polyurethane tread is cast onto the stable steel wheel centre using a specialised rotating casting procedure.

The result

The Blickle solution provides increased load capacity and improved safety. The rollers are also significantly less complicated to install than multiple individual wheels. The way in which the forces are distributed makes it possible to use a thinner wheel axle, cutting costs significantly.

A number of facilities have already been equipped with the heavy duty rollers and successfully tested. The new Blickle solution will be used as the standard option in future.

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