

Lukas Steiner, Wikov Industry

Heavy-duty Wikov gearboxes competitive in Germany

Wikov provides mechanical drives for the cement industry, including gearboxes for high pressure grinding roll (HPGR) presses, vertical roller mills, side drive gearboxes for ball mills and kilns and belt conveying systems. The company previously installed gearboxes for Lafarge in Greece and Poland prior to agreeing to deliver equipment for a ball mill at its Karsdorf plant in Germany. The Karsdorf plant has since transferred to Opterra (CRH), following the divestment of the plant due to the merger of Lafarge and Holcim in 2015. The installation of the project is described here by Wikov's Lukas Steiner.

Right: A 60t parallel shaft gearbox after assembly at Wikov plant in Pilsen has been supplied with an auxiliary gearbox, lubrication unit and foundation for the complete drive of the fourth mill at Opterra Karsdorf.

The Karsdorf region of Germany is abundant with limestone and clay, making the location attractive for cement production. The foundation stone for a cement plant was laid in the region in 1927 by the Kersten brothers. The plant later transferred to the FLSmidth company from Copenhagen, Denmark and, in the 1990s, the cement plant became a part of the french Lafarge Group. Lafarge invested in an extensive modernisation of the plant, which reopened in 1995 as a 2.3Mt/yr facility.

Two decades later, the latest owner Opterra continues to upgrade and increase efficiency of the plant. A recent upgrade concerned the replacement of a central drive for one of the plant's five ball mills. The original gearbox by ASUG Getriebe und Zahnradfabrik Dessau had completed over 180,000hr of operation and no longer provided secure uninterrupted production.



Due to the need for competitiveness in the modern cement industry, minimising capital and operational expenditure is very important. "Customers in Europe can gain from Wikov's location in Central Europe and most importantly its flexibility to adopt to individual conditions in the cement plants, competitive delivery and pricing terms," said Mr Yolkin, Sales Manager at Wikov Gear.

Right: Heavy-duty helical gearbox of 2.5MW power and a gear coupling driving the fourth horizontal ball mill at Opterra Karsdorf.



Next to the financial aspect is drive reliability. The decreasing revenues at major European cement plants and higher cement production levels increasingly result in demands for uninterrupted production. This can be achieved only with technology of the highest quality. This is what motivates gearbox manufacturers to engineer products that will meet requirements for extended gearbox lifetime at minimal maintenance

and repair costs, due to postponing investments by cement manufacturers. This approach is principal to succeed in the highly competitive market, according to Lukas Steiner, Marketing Manager at Wikov Industry.


In the case of the Karsdorf plant, the ideal solution for the ball mill drive that provided the optimal price performance ratio was a heavy-duty ZTE type helical gearbox.

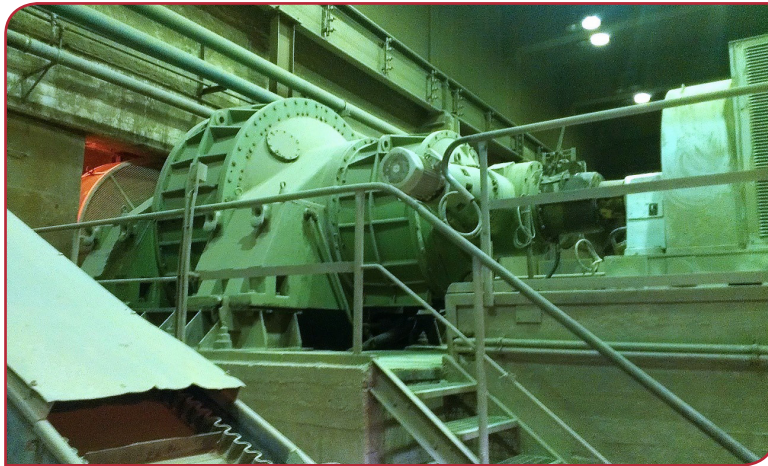
The new drive had to fit into the original space in order to minimise construction modifications and reconnect the main gearbox with the ball mill by means of a 4.88m-long coupling with a diameter of 1.37m. Considering the possibility of uneven surfaces, a gear coupling proved itself as the proper choice to compensate for eventual misalignments.

The main 2.5MW gearbox supplied by Wikov was supplemented with a CHX auxiliary gearbox with an output speed of 8.8rpm and serves for inching during maintenance work on the mill. The auxiliary gearbox is fitted with a hydrodynamic coupling to ensure step-less motion during inching with the mill. The housing of the ZTE gearbox serves as an oil tank and saves space around the mill drive.

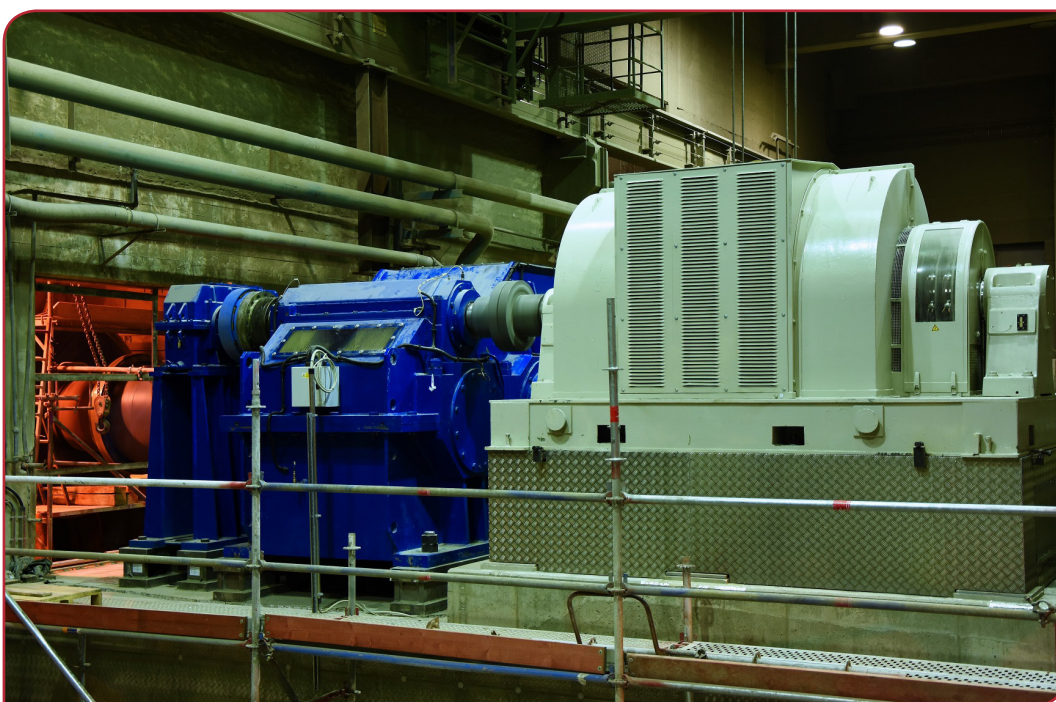
ZTE gearboxes belong to a traditional product line at Wikov and are literally taken 'off-the-shelf' in many cases. However, the project for Opterra

required maximum flexibility and the challenge was to engineer a 60t gearbox that, in case of conventional design, would weigh around 80t. Meeting this weight condition was essential to make installation of the new drive possible, as was having modified gears while keeping ultimate material quality. The complete package included lubrication with a backup circuit to ensure uninterrupted mill operation, even in the case of lubrication system malfunction.

Helical gearboxes have the longest manufacturing tradition in Wikov. "We at Wikov believe that mechanical drives are still the most reliable solution for many industries and they provide customers with cost-efficient operation of their drives. The demanding market conditions on the other hand drive our effort to develop new solutions with added value that will go beyond expectations of our customers," concludes Lukas Steiner. 



Left: The original fourth mill planetary gearbox.



Left: The new ZTE gearbox interconnected with auxiliary gearbox for inching and original electric motor.