Metal Plate Conveyor with Increased Productivity and Reduced Wear

In IJmuiden, the Netherlands the successful commissioning of an AUMUND metal plate conveyor has now been completed. The deep drawn pan conveyor, specifically developed for sinter transport conveys iron sinter to the ring cooler at Tata Steel at capacity of 250 t/h.

Tata Steel IJmuiden annually produces around 7 million tonnes of high quality steel which is used in the automobile industry, the building sector and the packaging industry among other sectors. Already in 2008 Aumund Fördertechnik received an initial enquiry from Tata Steel (then Corus). The vibration conveyors which convey the sinter from the sinter plant to the cooler were worn and, within the framework of a modernisation program, the structural problems were scheduled to be solved. These lay largely in the high wear rate of the vibration conveyor which led to high levels of maintenance and frequent replacement of the troughs. As metal plate conveyors have no relative movement between material and conveying unit, in contrast to vibration conveyors, utilisation of Aumund conveyors was examined.

After the change of ownership had taken place, the previous project to replace the vibration conveyor was once again put on the agenda. Owing to the particular installation scenario on site and various conveyor configurations, Aumund was awarded the contract for the supply of a 2400 mm wide deep drawn pan conveyor type KZB-S 2400/250/6. A constructional challenge existed in particular in the vicinity of the sinter conveyor where extremely high temperatures prevail which can have an effect both on the life-time of the components being used and on the drive unit.

In a departure from traditional solutions, Aumund engineers selected a drive which was accommodated at the tension station. Through relocating the point of installation
the drive is no longer compromised by the extremely high temperatures on the discharge side of the conveyor. Further optimisation was undertaken on the deep drawn pan conveyor by installing a frequency converter which enables various conveyor speeds.

It was possible to preassemble the entire conveying equipment as a compact single unit, transport it to the site and, utilising a crane, place it in the sinter production workshop. As a result both erection time and the directly related plant shutdown period were minimised.

Tata Steel is anticipating increased productivity of the sinter plant through the employment of the new conveyo. In addition, lower operating costs are expected through a reduction in maintenance requirements and energy consumption. Comparable conveying systems have been installed by Aumund’s Division Metallurgy at, among others, ArcelorMittal Bremen and Voestalpine Linz. Further projects are currently under way.