Global Cement staff

Chains in the cement industry

A new scraper conveyor for Českomoravský

Together with its Czech partner Kešner, pewag austria introduced a 66m-long scraper conveyor system to Českomoravský Cement (part of Germany’s HeidelbergCement) near the Czech capital Prague. The critical issue that had to be solved was the long distance of the total scraper line combined with the fact that the customer wished to have no idle wheels between the line due to the architecture of the plant.

For this tricky project, pewag austria and Kešner opted to use a HV G80 E10 22 x 86 chains with KFB flight attachment and IR sprockets. The project was finally established and immediate problems with vibrations were solved by cooperation between Kešner, pewag austria and Českomoravský Cement. A second scraper conveyor line of a very similar length will be installed at the plant in January 2014.

Bucket elevator retrofit increases uptime

A long-standing Rexnord customer (a global cement producer located in central United States) was experiencing excessive downtime and maintenance as a result of poor performance from another supplier’s bucket elevator. To improve the bucket elevator’s operations performance and provide improved access to it, the customer enlisted Rexnord’s expertise.

Rexnord determined that a retrofit of the bucket elevator by resizing and replacing all of its moving parts, as well as the installation of an improved boot access door kit, would solve the customer’s problems. Similar to previous projects, success will be measured by the increase in capacity and in the reduction in both downtime and maintenance. Rexnord also supports additional global locations for this producer, including Indonesia, Philippines, India, the Dominican Republic and Colombia.

Double life-time scraper chain

At the end of 2010 FB Ketten had to optimise the lifetime of an OEM’s drop forged link chain in the E-filter of a cement factory in Switzerland.

The chain works in a very corrosive and abrasive application and after two years, or around 16,000 operational hours, the OEM-chain showed significant wear in the bearing area. FB Ketten reacted very fast and designed an alternative chain, supplied in December 2010.

Every year since, FB technicians have checked the chain. In December 2012 it was shortened for the first time. Significantly, there was no visible wear to the bearing pin and link.
The FB chain is expected to operate for at least double the life of the OEM chain as a result of designing a specification to meet the demanding application requirements.

**King of chains**

John King Chains Ltd England is a world leader in the manufacture of cast link chains for materials transport. Its main success is in the production of chains in high manganese steel with its unique work hardening properties, although the company is also able to produce chain link castings from high alloy steel where heat resistance is the main focus. It has a wide variety of patterns which allows it to respond to most enquiries.

In December 2013 John King Chains fulfilled a major order for Lafarge Bamburi Cement in Kenya. The specification demanded hard facing on contact, which was applied with John King’s in-house robotic welding technology.

**Jammbco**

Jammbco has specialised in heat-exchange kiln chain systems for over 40 years, offering a plethora of alloys in several shapes and sizes specifically dedicated for high temperature and wear applications.

Jammbco’s rotary kiln chains are manufactured in carbon steel, stainless steel and austenitic manganese steel. Its round link kiln chains are precisely welded using a butt-to-butt fusion process to ensure the highest quality. Its renowned and patented Heat-X225 Chain is cast in continuous strands without any welds, thus strengthening the overall integrity. The Heat-X225 chain enhances the productivity of 150 kilns worldwide, improving the overall efficiency of the calcining process.

In addition to offering high quality kiln chain and accessories, Jammbco provides an in-depth analysis of clients’ current kiln conditions. Kiln analyses commence with a burner operations evaluation, through to the ID fan and feed contaminant, which might contribute to present kiln bottlenecks. Following its examination, Jammbco will offer and suggest a number of solutions and parameters that will assist in optimising a given kiln’s efficiency.

**Experts in chain technology**

Following the success of RUD’s Side Wall Attachment (SWA), which has improved the task of installing side mounted elevator buckets, the company’s innovative Back Wall Attachment (2WIN) is intended to do the same for elevator systems that employ rear-mounted buckets.

As with the SWA, the 2WIN offers distinct advantages over conventional mounting devices. There are only five elements per attachment: two identical bolts, two identical boomerang-shaped, reversible chain gripping flanges and one locating pin.

Fitting the 2WIN is simple to understand, quick to install and requires no special tools. As with the SWA, the 2WIN enables buckets to be mounted without cutting the chain.
New HLB-WB-type forged bucket elevator chains from Thiele

Thiele has launched its new HLB-WB-type forged bucket elevator chains for cement industry applications. The design of the completely-forged chain focuses on reduction of maintenance, especially in light of the hot and abrasive materials and conditions found in cement plants.

To avoid wear in the track joint area and externally on the contact area between the bushing and sprocket, Thiele has constructed a secondary labyrinth seal between the attached bucket plate in addition to the labyrinth seal between the inner and the outer forged link plate. Patents regarding several aspects of this design are applied for. Surface friction is reduced because the bucket plate is assembled in line with the inner plate.

The elevator chain itself is reversible and can be run on either side of the link plates. This will provide an extended total operational lifespan. High stability is achieved by improvement of the total back support carrying width and forged inner and outer plates up to a bucket width of 1200mm. The new product is available for chain breaking loads of 1200kN up to 1900kN and can be used for chain speeds up to 1.9m/s.

Innovations in TPC technology

The tyres of the wheeled loaders employed in the winning of raw materials for cement production are often protected against premature deterioration from abrasion and catastrophic sidewall piercing by Erlau tyre protection and traction chains (TPC). Extending tyre life by a factor of 10, TPCs are essential accessories in many cement production operations.

Recent innovations include Smartlink, a link-embedded RFID device that records a downloadable service history of each TPC, and Easylock, which is an easy to install, re-useable, hex-key secured connecting ring which does away with the dangerous hammers and pins used in joining the ends of the chain mesh as well as the illegal use of torches to cut away corroded, old-style rings.

High-performance chains from CPL

For more than 40 years, CPL Industrie’s flexible production facilities located in Belgium have allowed the company to adapt its products to particular client requirements. The company’s expertise in overhauling apron feeders, bucket elevators and conveyors is recognised by major cement manufacturers.

In the past two years, CPL Industrie has completed two important contracts for the overhaul of a total of 15 bucket elevators over a period of five years. A section of one of the upgrades is shown.

Webster Industries

Since 1876 Webster Industries, Inc has provided conveying solutions to a broad range of markets. In the cement industry Webster provides upgrades to standard bucket elevator chains, pan conveyor chains and hard-to-find OEM chains.

Webster manufactures all products at its Tiffin plan in Ohio, US and is involved in a wide range of replacement projects for bucket elevator chains, buckets, sprockets, drag conveyor chains, pan conveyor chains, replacement pans, apron chains, replacement aprons, stacker/reclaimer chains and other made-to-order chains for clients in the global cement industry.