AO Mordov Cement contracted Aumund to take part in the large-scale modernisation of its existing facilities and the construction of new process lines. The first Aumund conveyor was supplied to OAO Mordov Cement in 2005. This 300 tph clinker pan conveyor type KZB-Q, collects material from the semi-dry process line and four wet process kilns at the Staroalexeyevsky plant. The commissioning of this conveyor and its successful operation became the starting point for long-standing cooperation.

Since then OAO Mordov Cement has purchased and installed over 100 Aumund machines. Orders were received directly from OAO Mordov Cement as well as via general contractors: KHD/ZAB, Polysius, FCB, Christian Pfeiffer and Scheuch.

A range of equipment was supplied by Aumund to OAO Mordov Cement for the construction of a new dry process line. Following the order from ZAB Industrietechnik, SCHADE (a member of the Aumund Group) delivered a storage system for additives designed as a covered rectangular stockyard. The scope of supply included a travelling tripper car for material feeding to the stockpile, a cantilevered boom reclaimer for material reclaim (Figure 1), as well as feeding and discharging conveyors.

ZAB Industrietechnik’s order also included deep-drawn pan conveyors for clinker transport from beneath the cooler to the off-spec clinker silo, onwards to the main clinker silo and finally to the open stockyard (Figure 2). The clinker is collected from beneath the silo.
by four KZB Aumund deep-drawn pan conveyors via silo discharge gates with both motorised and manual control (Figure 3). The off-spec clinker silo, which will also be operated as a clinker export silo, is fitted with telescopic loading spouts including integral dust control to feed clinker into railcars and trucks.

A total of 11 drag chain conveyors are supplied to transport filter dust and raw meal (Figure 4). Thanks to the enclosed design, these machines ensure a dust-tight transport of fine-grained materials over a distance of up to 50 m. The number of discharge openings is selected according to the plant requirements.

**Transport to cement mills**

OAO Mordov Cement placed a direct order for clinker transport equipment from the main silo of the dry product line to the new and existing cement mills. Two Aumund KZB deep-drawn pan conveyors collect clinker from the reclaim conveyors under the silo and deliver it for further grinding. The project also provides for clinker feed to these conveyors directly from the open stockyard.

A single SPB pivoting pan conveyor with 1600 mm wide pans, seven automatic and two forced discharge stations will feed the hoppers of three cement mills. The conveyor transport capacity will be 450 tph of clinker and 140 tph of additives. Clinker delivered by the collecting conveyors is distributed on the upper run, while additives are fed alternately from the collecting conveyors and distributed on the lower run.

The clinker transport from the off-spec clinker silo to the existing cement mills is equipped with three Aumund KZB type deep-drawn pan conveyors with a total length of more than 600 m. Clinker transportation over long distances with all-steel conveyors guarantees reliable operation even with high clinker temperatures and low ambient temperature. Due to the lower running speed of Aumund conveyors as compared with belt conveyors, dust generation is reduced considerably. In addition, the increased time in transit promotes further cooling of the clinker, which offers a reduction of the specific energy and air consumption for cooling purposes.

The bucket elevators equipped with the central chain type BWZ are used to feed cement mills with closed grinding cycles at the new dry process line and modernised existing mills. The first Aumund bucket elevators were installed five years ago and are still running reliably.

**Alternative fuels handling**

OAO Mordov Cement was the first company in the Russian cement industry to start using alternative fuels to run its plants. In 2007, Aumund supplied the Staroalexeyevsky cement plant with the first bucket elevator for the transportation of shredded tyres. In 2009, the whole Aumund system for receiving, conveying and proportional feeding of shredded tyres into the preheater was installed at the dry processing line. This system consists of the Samson® material feeder with entry volume of 100 m³ (Figure 4). The Samson® feeder is used for the intake of shredded tyres direct from tipping trucks.
and as the buffer storage. Due to a special design, it is installed above ground so no deep pits are required. This reduces not only capital costs, but also helps to avoid problems with high ground water level.

The intake and discharge system for wood chips will be installed on all facilities at OAO Mordov Cement. For this purpose Aumund supplied three Samson® feeders and three bucket elevators with central chains.

Upgrade of the grinding department
The next large-scale project at OAO Mordov Cement was the modernisation of the grinding department at the Staroalexeyevsky cement plant. Aumund will supply the equipment for transporting and storing raw materials, additives, clinker and cement.

A heavy-duty apron feeder receives raw opoka (a raw material) from the grab crane at the intake point and delivers it for further grinding. Then the material is fed to the dryer/crusher where it is transferred into the dried opoka silo. A rotary discharge machine, type BEW-K (Figure 5), ensures the reliable discharge of opoka onto a conveyor feeding the cement mills.

At the gypsum intake the armoured chain conveyor, type PKF, is used to discharge the trucks. This type of conveyor minimises the pit depth. Gypsum is handled by the belt conveyor and the bucket elevator with central chains, either to the temporary storage with a grab crane or to the flat plate conveyor for further transportation to the cement mills.

Clinker will be delivered from four existing wet process kilns and one dry process kiln to the clinker silo and the off-spec silo, which will also be operated as a clinker discharge silo.

The clinker from the silo, together with imported clinker, is transported to the grinding plant.

SPB deep-drawn pan conveyors will feed the cement mills with clinker and additives. Cement is handled mechanically from cement mills both to the old silos and to new compound silos. The belt conveyors and chain conveyors, type TKF, are used for transportation and the belt bucket elevators are used for lifting. All transfer points, consisting of clinker silos (both the main and off-spec silos), as well as the dried opoka silo, are equipped with integral dust control.

Aumund would like to thank the management of OAO Mordov Cement for the trust they have placed in the company and looks forward to continuing the fruitful co-operation.