

Pura vida in Costa Rica

“Pura vida” means “pure life”, but for Costa Ricans it is more than the country’s catchy slogan to say everything is cool. It is their relaxed way of life, where everything runs smoothly and with a positive focus. This way of life was also reflected in Elementia’s choice of a Gebr Pfeiffer ready2grind system for its new Salinas Esparza plant.

■ by **Chris Oesch**, Gebr Pfeiffer Inc, USA

Elementia is a Mexican company led by business magnates Carlos Slim and Antonio del Valle Ruiz. The company produces and sells building materials for the construction sector in the Americas, while its cement business provides grey and white cement, mortar and ready-mix products under known brand names – Cementos Fortaleza, Keystone Cement, Dragon Cement and Giant Cement.

Five years ago, Cementos Fortaleza commissioned its first plant in Mexico, marking the start of a series of annual plant openings – built or acquired – that helped consolidate its strong position as a cement producer, especially in Central America.

Enabling Elementia’s Costa Rican presence

Elementia’s presence in Costa Rica is through Plycem, the group’s business unit that manufactures fibre cement products, established over half a century ago with commercial outlets in more than 30 countries.

Clinker storage and mill feeding area of Gebr Pfeiffer’s ready2grind system at Elementia’s Salinas Esparza plant, Costa Rica



To integrate its cement business, Elementia decided to invest US\$17.5m to enter the Costa Rican market in 2018. The company put its trust in Gebr Pfeiffer to not only build a plant but to commission it in record time. Gebr Pfeiffer’s ready2grind

modular system was the perfect solution.

The system was the world’s first grinding solution that combined a modular concept with the high efficiency of a vertical roller mill (VRM). To achieve such innovation Gebr Pfeiffer combined its 150+ years of experience in grinding technology and local engineering talent in the design, manufacture and assembly of a cement plant that fits the client’s varying needs.

Among many other advantages, these fast-track plants can be

up and running in less than 12 months. Two years after its very first installation, ready2grind systems have been ordered by more than a dozen clients throughout the Americas as well as in east Africa.

Ready2grind at Salinas Esparza

Elementia’s new greenfield facility at Salinas Esparza, about 75km (47 miles) west of San José in the Puntarenas province, was the cement producer’s easiest and fastest route to an operational cement plant, with the project being completed in less than seven months. As the company’s Cement Country Manager, Enrique Acosta Mainieri, says: “It was a quick answer for the Costa Rican market.”

The ready2grind facility at Salinas Esparza is comprised of three areas, designed for feeding, grinding and storage/packing. The feed area has a clinker/gypsum and additives mill feed system (with four dump hoppers), a crusher, weight belt conveyors (for raw material transportation and recirculation) and a bucket elevator (that feeds into the mill in a dust-free environment).

The grinding area of the ready2grind facility





plant has a state-of-the-art quality control laboratory, central control room, electrical substation, electrical room, administrative offices, canteen and locker room. The plant compound also includes a main entrance with security checkpoint and truck scales.

Environmental challenges

The entire plant occupies a 5ha (12 acres) site, carefully prepared to hold a world-class operation with minimal environmental footprint. Challenges faced during the project were related to the geography of the site: a rugged off-road area, nestled

between Caribbean and Pacific coasts with temperatures of around 37 °C (low 100 ° F) and a humidity level of more than 90 per cent. The precipitation levels typical of a rainforest caused some delay in the civil construction.

Every single structure at Salinas Esparza was specifically designed and reinforced to accommodate Costa Rica's seismic code.

Furthermore, all ready2grind modular grinding systems exceed the standards for air, water, soil and noise pollution to

The clinker grinding system combines an MVR 2500 C-4 VRM with an average production capacity of 50tph, a high-efficiency classifier and ancillaries, process filters, hot-gas generator and fan, electrical controls and drives as well as cement transport equipment.

This system can be easily adapted to grind three different types of cement: CPC 40, CPC 30 and mortar. Depending on the customer's changing needs, it can also switch between cement, gypsum, pozzolan

and limestone, grinding product at low to high throughput rates, and at different levels of grindability and abrasiveness.

Ground products are stored in three silos. Storage options are custom designed for their specific plant layout. The current storage solution includes three bulk loading systems as well as a packing and palletising area within a covered cement storage building to accommodate about one half of the plant's daily production.

As part of the main building, the



Salinas Esparza's soil profile had to meet layout requirements for this 'greenfield' project



Every structure at the plant is designed to withstand Category-5 hurricane winds and accommodate the country’s seismic code



The packing area is housed in a covered cement storage building



The bulk loading area at Salinas Esparza

meet both local regulations but also the World Bank’s Environment, Health and Safety Guidelines for Cement and Clinker Grinding Plants.

Moreover, as Costa Rica proudly produces more than 98 per cent of its electricity from renewable energy sources, energy efficiency is very important in Central America’s ‘green jewel’. As a result, Elementia is highly aware of the plant’s impact in terms of energy consumption. One of the VRM’s key advantages is its energy efficiency compared with other grinding technologies.

Encore!

Gebr Pfeiffer’s passion for grinding is combined with a passion for convenience: to deliver modular tailor-made plants that allow for more efficient transportation. The compact system is pre-assembled in containers ready to be shipped and mounted on-site. This portability helps keep costs low, and makes assembly and erection very straightforward, affordable and most importantly, fast.

“There were no issues with engineering delivery. Gebr Pfeiffer adapted to our requests of changes in engineering. The

company is excited to start a second one,” were the exact words of Mr Acosta during Gebr Pfeiffer’s Technical Panel, held in Fort Lauderdale, USA, last December, when Elementia publicly announced both companies’ next joint development.

The Costa Rica plant was ready in less than a year, without sacrificing performance. Elementia has acknowledged Gebr Pfeiffer’s commitment by investing in a second ready2grind modular system which will be delivered in the same reliable, relaxed and smooth way...Pura vida! ■