

## DemcoTECH Engineering: servicing the cement industry across the process chain

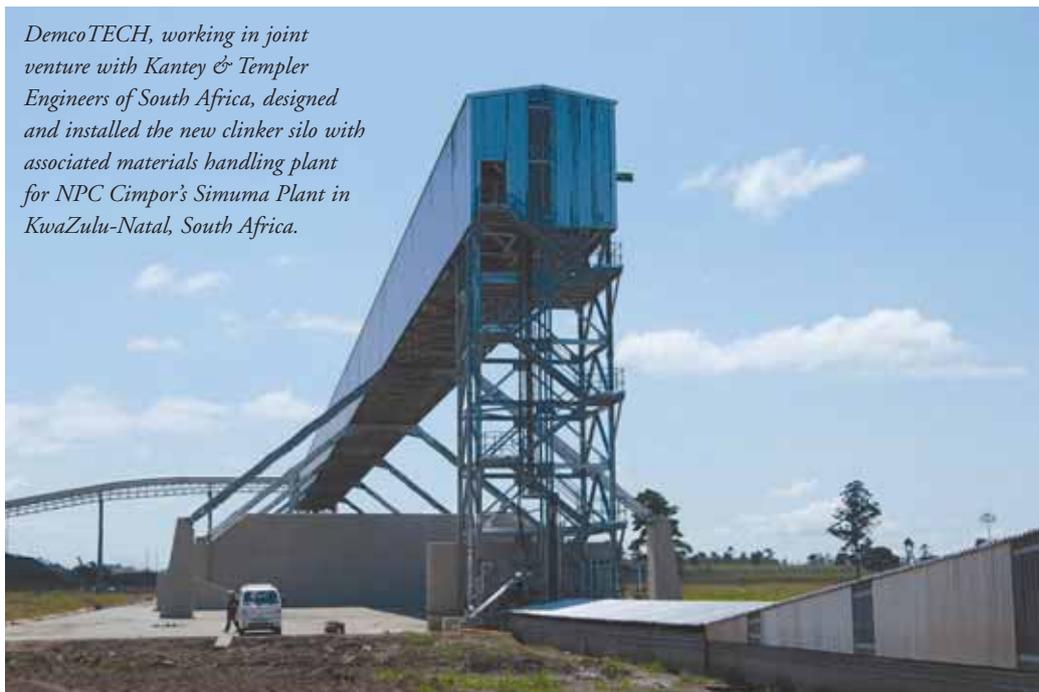
Despite the fact that the medium term outlook for the South African cement industry remains bullish, locally based engineering houses such as DemcoTECH Engineering need more than ever to think and stay ahead of trends and developments globally, says materials handling and niche process plant specialist, DemcoTECH GM Paul van de Vyver.

In Africa, particularly, the cement market has entered an exciting and dynamic phase seeing a number of shifts as new major geographical cement markets emerge on the continent.

For example, Ethiopia, something of a junior league player in the past, has emerged as one of Africa's largest markets for the cement industry, competing with Nigeria, Tanzania and South Africa, adds van de Vyver. "Adding to the growth of the market across Africa is that many companies have announced plans to expand their cement capacity, such as Dangote who plans to double its cement capacity in Tanzania by 2019, "But," cautions van de Vyver, "the entry of international players, particularly the Chinese who are playing an ever more critical role in funding Africa's largest infrastructure projects, means that, while opportunities are increasing, so is competition."

Having been established in Johannesburg, South Africa more

*DemcoTECH, working in joint venture with Kantey & Templer Engineers of South Africa, designed and installed the new clinker silo with associated materials handling plant for NPC Cimpor's Simuma Plant in KwaZulu-Natal, South Africa.*



than a decade ago to service predominantly the local mining and minerals and general industrial sectors, DemcoTECH has in recent years successfully expanded into the international market.

"Today, our international work is the bulk of our order book," says van de Vyver. "Project awards, particularly from Asia for our materials handling expertise, have more than compensated for any fall off in work from South Africa, particularly from the local mining industry which is yet to recover from the recent commodity downturn."

DemcoTECH's cement track record in Africa is well-established ranging from supply of a 150tph (tonnes per hour) pneumatic transport system for Nova Cimangola's cement plant in Luanda, Angola and of travelling maintenance trolleys for various projects, to a new 40,000-tonne capacity, multi-discharge clinker silo for NPC-Cimpor in South Africa. DemcoTECH has also supplied pipe conveyors to a number of cement producers, not only in Africa but also in India.

Its well-established materials handling expertise and advanced technologies are supported by a network of partnerships with leading consultants to the cement industry. "As a result, DemcoTECH is ideally placed to provide the cement industry with a full solution from collecting, through conveying, storage and conditioning, to classification and outloading," comments van de Vyver.

For example, the 40,000-tonne clinker silo for NPC Cimpor's Simuma Plant in KwaZulu-Natal, South Africa was carried out in conjunction with Kantey & Templer which was responsible for the civil and structural design, engineering and project execution of the concrete silo. DemcoTECH provided the materials handling expertise for the project, which included the mechanical and electrical design, engineering and project execution of the system.

"The cement manufacturing and handling process is a complex process," says van de Vyver, "and cement and clinker can be difficult material to handle, as well as being very abrasive and dusty. As a result, DemcoTECH's ability to provide a total solution for the materials handling system from concept development, feasibility studies and audits through to project



*DemcoTECH provided four travelling maintenance trolleys, fully equipped with maintenance tools and maintenance power sockets, to NOVA Cimangola for the pipe conveyor at its Luanda plant. The maintenance trolleys have to negotiate an incline of up to 15°, which presented a number of design challenges.*

execution, promotes seamless integration between the various stages of what is more often than not a multi-million dollar project,” says van de Vyver.

“While work we have carried out includes major project execution projects, such as that for the NPC Cimpor silo, we are also as in demand for the smaller-scale work, such as design audits, which are as important to a sustainable and healthy cement sector. For example, DemcoTECH carried out a design audit on a dump disposal system for ash, an important component in the production of cement, for a 6 × 600MW power station.

“Recovering and converting waste ash into fly ash is a major consideration in the infrastructure of a power plant, offering enormous savings both for the producing power stations and in concrete materials costs as pulverized fly ash (PFA) is an important supplement in the production of Portland cement concrete. Fly ash is also an environmentally-friendly solution that meets and can also exceed performance specifications for cement.

“The design study for the power station was comprehensive, involving a design review of plant and components, plant performance testing, mass and water balances, simulation modelling of the processes, CAPEX and OPEX cost analysis and preparation of process flow diagrams [PFDs].”

“For an operation to be profitable, the entire system must be optimized and reliable, minimizing problems related to material flow and storage along the complete system,” adds van de Vyver. “This is particularly so with the dusty, very abrasive and ‘sticky’ materials involved in the production of cement that are prone wear and spillage,” explains van de Vyver.

”In addition to access to the latest technologies that we offer,

which includes AeroConveyors™, pipe conveyors and pneumatic conveying systems, advanced testing and modelling/simulation tools are critical in designing efficient cement plants. Such plants must be based on a thorough understanding of the properties of the material, particularly for the worst likely flow conditions expected to occur in practice. Important elements include providing a flow pattern with acceptable characteristics, ensuring that discharge is reliable and predictable, and thorough design and detailing of the plant including the structure and equipment.

“In addition, at any point where material is moved or transferred, dust is generated. Effective dust control systems are therefore also critical in a cement plant, particularly in view of the increasing legislative and social pressure to reduce the impact on the environment.

“All equipment we design and install complies with international environmental and safety standards.”

#### **ABOUT DEMCOTECH**

DemcoTECH Engineering is a specialist bulk materials handling and niche process plant company, offering services from concept design through to project completion to the power generation, cement, mining, metallurgical, manufacturing and port handling industries. Services include conceptual design, feasibility studies, design, engineering, procurement, expediting, construction and commissioning. Plant supplied by DemcoTECH includes troughed conveyors, air-supported conveyors, pipe conveyors, rail-mounted slewing boom stackers, pivot boom conveyors and mobile conveyors. After-sales services include spares, maintenance, refurbishments and operational readiness packages covering procedures, systems and workplace tools required to successfully operate and maintain a new or upgraded plant.