

First locally manufactured SmartPlant™ in Africa

In a major milestone for Sandvik Rock Processing, a fluorite mine located some 100 km outside Pretoria, South Africa, is the recipient of Sandvik Rock Processing's first locally manufactured SmartPlant™ in Africa. Following its recent commissioning, the 300 tph plant has already met process guarantees and reached nameplate capacity.

To improve efficiency and productivity, a South African fluorspar producer went into the market for a new processing plant in 2020. The SmartPlant™ concept from Sandvik Rock Processing appealed to the customer for several reasons, but mainly because of the fast delivery time, flexibility and substantial cost savings it would offer the operation.

SmartPlant™ is a range of pre-defined Sandvik SmartStations that can be mixed and matched to meet individual customer needs for maximum productivity and performance, thus reducing waiting time, maximising uptime and increasing profitability. Delivery generally takes about 22 to 30 weeks ex-works. Where there are peripheral design changes to the pre-defined SmartStations, lead times may be

shorter than this standard estimation.

According to Jaco Benade, Project Manager for Crushing and Screening at Sandvik, the deal was negotiated midway through the Covid-19 hard lockdown of 2020. The order was placed during Level 5 of the lockdown, with manufacturing commencing during Level 4. Despite the challenges brought about by the travel restrictions, compounded by the global supply chain disruptions, the plant was still delivered on time and within budget.

"A major talking point of the project was the short delivery time of 22 weeks ex-works at a favourable capital cost to the customer," says Benade. "The SmartPlant™ concept allowed the customer to choose from pre-defined SmartStations and combine and configure them to meet specific site and operational needs, with no extra design and engineering costs."

While the designs are very much pre-defined, the SmartPlant™ still offered a great deal of flexibility for the customer. "The modular approach of the SmartPlant™ meant that the customer could tweak design parameters such as height, capacity and liner profiles, amongst others, without having to be concerned about cost and time deviations," explains Glen Schoeman, Vice President – Sub-Sahara Africa at Sandvik Rock Processing.

Regarding flexibility, Sandvik's approach to the project was also a major plus for the customer. For example, based on its understanding of the customer's budget and time constraints, Sandvik opted for the mine to commission a conveyor supplier of its choice, purely to shorten the time to production and reduce costs for the customer.

In line with Sandvik's 'safety first' culture, the project was delivered with no lost time injuries, all the way from project inception to commissioning. "Despite the arduous conditions on site, ranging from excessive heat to wet weather conditions, the project was completed with an impeccable zero harm safety record," says Schoeman.

The new plant comprises a full suite of Sandvik equipment, including jaw and cone crushers, screens and feeders. Informed by customer needs, Sandvik opted for a much bigger front-end of the plant, comprising a large tip area and bigger jaw crusher. The

Sandvik CJ412 primary jaw crusher, which takes a 750 mm top size, is fed by a box bin and a grizzly feeder.

The plant also employs two Sandvik CH840i cone crushers for secondary and tertiary crushing, the very first units of the company's 800i series range of cone crushers in Africa. Another first in Africa is the rotary feeder on top of the cone used to distribute material into the crusher. "This is a fantastic approach," says Benade. "The rotary feeder turns slowly, evenly distributing material around the edges of the crusher. This reduces pressure peaks in the crusher caused by uneven feed, a common challenge in crushing plants. The rotary feeder has passed with flying colours in terms of its performance at this particular site."

As the name suggests, the plant is 'smart' in every aspect. The CH840i cone crushers come with Sandvik's Automation and Connectivity System (ACS) as standard. The system continuously monitors and optimises crusher performance and controls the complete lubrication system, increasing uptime and reliability. It can also automatically adjust crusher settings to compensate for crushing chamber wear, ensuring consistent product size.

In addition, the SAM by Sandvik digital service App supports operational excellence in the plant. SAM by Sandvik is designed to give operators and service technicians that are



The modular approach of the SmartPlant™ meant that the customers could easily and cost effectively tweak design parameters such as height, capacity and liner profiles.

closest to the equipment instant access to the information they need to succeed.

"SAM by Sandvik brings people, activities and data together in an easy-to-use, seamless and collaborative way. It allows both client and OEM remote access to the plant. The

system itself provides a holistic view of the plant, enabling the customer to make informed decisions and the OEM to respond proactively to any equipment health and performance issues," concludes Benade.

www.sandvik.com

High volume tipper for single or multiple vessels

A new High-Volume Open-Chute Tipper from Flexicon allows discharging of non-dusty, free-flowing and/or agglomerated bulk materials from multiple drums or boxes simultaneously, as well as from Gaylords, totes or individual bins.

The bed of the unit's hydraulically-tipped housing can accommodate containers from 940 to 1 115 mm in height, having an individual or combined footprint of up to 1 825 x 2 435 mm. Typical applications for multiple containers include simultaneous dumping of four 210ℓ drums or four boxes, each having a footprint of 915 to 1 220 mm.

Pallets weighing up to 2 265 kg are forklift-loaded into the three-sided unit and secured, after which a grate is lowered onto the container(s) to prevent shifting. The lifting assembly is raised to a height of 1 955 mm and tipped hydraulically, causing material to slide through a smooth, three-sided chute into receiving vessels.

Twin hydraulic cylinders pivot the platform-chute assembly to discharge angles of 45 or 60° beyond horizontal, including a motion-dampening feature at the termination of container rotation. Impact-resistant side panels and custom guard panels with a light

curtain ensure safe operation. The tipper is available in heavy-duty, all-stainless construction to sanitary standards or in carbon steel with durable industrial coatings and stainless steel material contact surfaces. It is available with optional receiving hoppers configured with Flexicon mechanical or pneumatic conveyors to transport discharged material to

any plant location. The company also manufactures other configurations of drum/box/container tippers as well as flexible screw conveyors, tubular cable conveyors, pneumatic conveying systems, bulk bag dischargers, bulk bag conditioners, bulk bag fillers, manual dumping stations, weigh batching and blending systems, and engineered plant-wide bulk handling systems with automated controls.

www.flexicon.co.za



Flexicon's new High-Volume Open-Chute Tipper discharges multiple drums (shown) and boxes simultaneously, and it can also handle pallet-sized Gaylords, totes and other larger containers or vessels.



Sandvik opted for the mine to commission a conveyor supplier of its choice, purely to shorten the time to production and reduce costs for the customer.