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Weir Minerals' Process-Focused Solution Ups CNC Output

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Stilfontein-based sand and aggregate supplier CNC Crushers raised throughput at its Roadstone Shaft 5 crushing plant by 45% while cutting back on maintenance and simultaneously increasing production, after implementing a full process-focused solution from Weir Minerals.

"Partnering with Weir Minerals Africa increased my production output significantly and my uptime increased overnight," states CNC Crushers owner Carl Crous. "I should have done this long ago."

According to JD Singleton, Weir Minerals General Manager for Trio® and Enduron® equipment, the customer was experiencing high wear on the installed conventional cyclone, as well as on the older technology pump, having to replace liners every 120 hours of operation.

"Our brief was to increase solids to the cyclone underflow and increase the wear life on the cyclone feed pump," says Singleton. "The continuous breakdowns experienced with the older-technology crushing equipment, and the excessive oil usage was also causing high downtime for the plant. CNC Crushers needed a solution that would utilise the existing footprint and infrastructure."

As a solution, Weir Minerals installed a new technology Warman® WBH® 100 slurry pump and a Cavex® 400CVX10 hydrocyclone; it also replaced the existing cone crushers with Trio™ TC51S and TC36SH cone crushers to increase up-time and reduce maintenance costs.

“After 1,900 operating hours, the slurry pump was still running without needing any replacement parts, a vast improvement on the previous mean time between liner replacements of 120 hours,” he says.

According to CNC owner Carl Crous, this has meant that the company could take pumps off the critical maintenance list.

“Pump problems are something of the past,” says Crous.

With regard to the hydrocyclones, these proved to be more efficient than the conventional hydrocyclones, highlighting the benefits of the Cavex® hydrocyclone’s laminar spiral inlet geometry.

“The Cavex hydrocyclone increased the mass pull to the underflow, which resulted in increased production and reduced slimes to the tailings dam,” he says. “Using new technology equipment pays.”

For their part, the cone crushers increased plant availability as well as production, while meeting the criteria of matching the customer’s existing footprint. These crushers also incorporate multiple hydraulic cylinder clamping and adjustment, which enabled them to reduce the closed-side setting adjustment time from an hour and a half to just 5 minutes. In addition, their larger socket assembly was able to give full support under both extreme and light load conditions, providing a longer service life.

After the cone crushers were installed, a spares and service agreement was put in place to maintain maximum plant availability.

“Spare parts are kept in stock with our agent in Klerksdorp, in close proximity to the customer, and a dedicated service team for the North West province is always at hand,” says Singleton.

Following the crusher upgrade, a competitor’s installed primary and tertiary classification screens were replaced with a Trio™ TIO5162 (5’ x 16’ double deck) inclined screen, and the final product screen was replaced by a Trio™ 4102 (4’ x 10’ double deck) inclined screen.

PROCESSED FOCUSED PIC 01 : CNC Crushers' owner, Carl Crous next to a Cavex 400CVX10 hydrocyclone.

PROCESSED FOCUSED PIC 02 : A Trio TC36 short head cone crusher.

PROCESSED FOCUSED PIC 03 : A Trio TIH4102 double deck inclined screen.

PROCESSED FOCUSED PIC 04 : A Trio TIO5162 double deck inclined screen.

PROCESSED FOCUSED PIC 05 : A Warman WBH 100 slurry pump.

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