

# Customising Scalping Screens

Large tonnage throughputs, long drop heights, very heavy ROM ore boulders and large cut sizes all mean that the screen and its component parts must be specifically designed for the loads and stresses normally not experienced in dry screening processes.

**K**enny Mayhew-Ridgers, general manager engineering at Joest Kwatani, says that the scalping screen design, amplitude of stroke, excitation force, drive angle, deck angle, operating frequency and screen deck selection must be optimised to limit pegging on screen deck apertures.

The company has an impressive footprint of screen installations throughout Africa, which includes very large scalping screens. Bespoke screen types operate in applications from dry to wet screening, and include single to double or triple decks in a variety of sizes.

“Bulk Handling Today” recently attended an Open Day hosted by Joest Kwatani. We were interested to hear that the company was first in class to exceed the Mining Charter. Kwa (to/for)... Tani (tonnage) epitomises the company's commitment to moving customers' product and its ethical approach to its supply chain with every single part (with the exception of OEM bearings) being sourced within a 20km radius of its Spartan facility in Johannesburg. Logistics is not neglected with the supply chain manager sitting on the Exco and Syspro Warehouse Management System ensuring customers' demands are met on deadline.

Of interest too was taking a peak at the sophisticated engineering design department and laboratory set-up at the company – SolidEdge, Data Acquisition Systems, the MSC suite of tools and state-of-the-art strain gauge measuring complement the company's significant investment in vibrating equipment technology. Joest has also partnered with South African tertiary institutions and customers' technical departments to work on research and analysis programmes and to provide engineering standards for vibrating equipment.

MD, Kim Schoepin is the daughter of the founder of Joest, and credits her father with teaching her to think big and never compromise her values, an ethos certainly evident on the day!



This large scalping screen will handle variable ore conditions with a continuous feed load of 6 000 tph



One of the largest scalping screens ever produced to date

### On-tap expertise

"We source the necessary information required for appropriate design, which includes the specified tonnage throughput with its related particle size distribution table showing the maximum and minimum size of ore to be screened. Our trained metallurgists and engineers then chart the various curves of material distribution from large/coarse ROM material down to medium and even predominantly fine material," says Kenny.

The design and engineering process involves close cooperation between the in-house design engineer and the process engineer or metallurgist. Since a multitude of factors could compromise the fatigue life of a screen's components, the team needs to be able to extrapolate the most relevant data to produce a workable solution for the customer.

### Servicing and guarantees

"After gathering all the necessary information, the process and design engineers will use in-house developed process and structural sizing programmes. This will be followed by the development of a 3-D model by the engineering department in order to finally validate the design by using finite element

analysis software. Once completed, a data pack comprising detail drawings, complete with specifications, and bill of material are put together," Kenny adds.

In addition to customised design and engineering of scalping screens to best fit a particular application, customers need to be aware of the importance of a planned and timeous maintenance schedule. "Without replacing wear parts, vital components will be damaged and the entire integrity of dynamically operated machines will be compromised."

Joest Kwatani offers customers in-house and on-site training for both operating and maintenance personnel. A full service level agreement (SLA), tailored for individual customers, is also offered, and this is where Joest Kwatani takes over the responsibility for all servicing of the machines and guarantees the life of the machine during the period of the SLA with the mine.

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