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CUSTOMISING SCALPING SCREENS TO FIT APPLICATIONS IMPROVES THROUGHPUT

Large tonnage throughputs, long drop heights, very heavy R.O.M. 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.

Kenny Mayhew-Ridgers, general manager engineering at specialist vibrating equipment manufacturer and supplier 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.

Joest Kwatani has an impressive footprint of screen installations throughout Africa, and this includes very large scalping screens. This local manufacturer has built its reputation through a strategic map that hinges on carefully considering exacting customer needs and engineering screens for tonnage throughput, reliability and durability. Bespoke screen types operate in applications from dry to wet screening, and include single to double or triple decks in a variety of sizes.

“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 R.O.M. material down to medium and even predominantly fine material,” says Mayhew-Ridgers.

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.

“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 data pack comprising detail drawings, complete with specifications, and bill of material are put together,” says Mayhew-Ridgers.

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.

“We are constantly striving to pass product improvements on to our customers and our continuous improvement programme places us at the forefront of highly engineered screening machines,” Mayhew-Ridgers says.

CUSTOMISED SCALPING SCREEN PIC 01 : Joest Kwatani recently completed one of the largest scalping screens ever produced to date.

CUSTOMISED SCALPING SCREEN PIC 02 : This large scalping screen will handle variable ore conditions with a continuous feed load of 6000 tph.

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