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Kwatani Takes Rugged Screen Design To New Heights

Spartan-based vibrating screen specialist Kwatani is building one of its strongest and heaviest screens yet, to undertake punishing duty at a South African iron ore mine.

The 54 tonne scalping screen – measuring over 10 metres in length and with a 3,7 metre width – is a single-line unit that will handle about 7,000 tonnes of run-of-mine iron ore per hour. It will take feed from a primary crusher with a top size of 400 mm, although the dimension of these boulders may still be up to 800 mm long.

“This run-of-mine feed will place tremendous load on the screen, particularly due to the impact and weight of the oversize rocks,” says Kwatani CEO Kim Schoepflin. “Significantly, a large portion of the material – as much as 50% of the feed – will move over the full length of the screen without passing through the apertures, so the screen must effectively ‘convey’ these heavy boulders without incurring damage.”

This also means that the bed depth will be relatively high, requiring the design to accommodate a bed of about 800 mm of material on the feed end and about 500 mm on the discharge end. Iron ore is a heavy material, so a bulk density factor of 2,5 has been applied to the design specifications.

Vibrating with a stroke that applies around five times the gravitational acceleration (5G’s) on the material, the mass of the rocks is effectively increased by five times, according to the Kwatani’s chief operating officer Kenny Mayhew-Ridgers.

“This places a very high requirement on the machine’s technical specifications and durability, so the mine has been very careful to choose a supplier that they trust completely to design and manufacture a unit of this capacity,” says Mayhew-Ridgers. “Even the panels had to be designed with internal structures so they could withstand the magnitude of these forces.”

Schoepflin emphasises that the unit's single-line status makes it a key item of equipment on site, with several parts of the process plant heavily reliant on its throughput.

"It is therefore vital that the screen runs reliably and continuously, as any stoppage will in turn disrupt the whole plant," she says. "Uptime is an absolute non-negotiable."

She highlights Kwatani's capacity to design, manufacture, test, commission and maintain screens of this capacity and ruggedness.

"Our depth of expertise and experience in the field, combined with our substantial facilities and quality standards, equips us to custom-design and engineer fit-for-purpose machines that handle high tonnages reliably while doing the duty that customers demand," she says.

LARGE PIC 01 : Kim Schoepflin, ceo of Kwatani.

LARGE PIC 02 : One of the Kwatani scalper screens during manufacture.

LARGE PIC 03 : One of the Kwatani scalper screens during manufacture.

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FROM : CORALYNNE & ASSOCIATES
TEL : +79 523 7422
EMAIL : communicate@coralynne.co.za
WEBSITE: www.coralynne.co.za

FOR : KIM SCHOEPFLIN
KWATANI (PTY) LTD
TEL :+27 011 923 9000
WEBSITE: www.kwatani.co.za