

APPLICATION REPORT SCREENING



Written by Schenck Process Australia

Australian Mining

Volume 110/8 | September 2018

Weighing over 72 tonnes, using four DF704 exciters and can process around 10,000 t/hr of slurry in a metal extraction process. This Schenck Process vibrating screen could well be the largest screen ever built.

Schenck Process has recently designed and built the largest double deck flat screen in their range. Gordon Ashley the “product expert in screening” for Schenck Process, said the screen model SLK4390WXFS is made for wet processing the largest of mine throughputs with extreme fatigue strength and ability to resist huge loads. The project goal is to supply vibrating screens to withstand the sag mill discharge of 6,000 Tonnes/hour plus 4,000 m³/hour of water.

This model is around 5.5 m wide, 10.5 m long and 6.5 m high and will be the first double deck vibrating screen using four DF704 exciters mounted in pairs on two exciter beams using a dual drive arrangement with two 90 kW motors and variable speed controllers. “This installation has about every available option for a screen”, Ashley said.

With an installed mass of 120 tonnes, a vibrated mass of 72 tonnes and exciters that generate a combined force equivalent to fourteen “maxed out” jumbo jet engines, there is no surprise the screen has been nicknamed “The Beast”.



Picture: SLK4390WXFS vibrating screen equipped with the CONiO condition monitoring system.

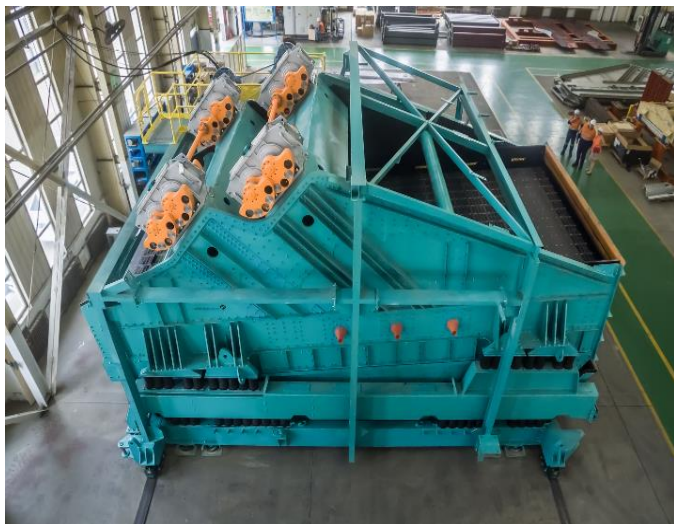


Picture: DF704 Exciters mounted in pairs on two exciter Beams.

A machine of this size has the potential to impair the rest of the plant due to the vibrations transmitted into the support structure: this risk has been addressed by the use of a tuned vibration absorber called an isolation frame, in operation, only a tiny fraction of the exciter force will be transmitted into the supports.

The plant design requires a system to move the screens out of the production stream for routine maintenance and to minimise plant stoppages, a rotatable system has been devised; one screen rolls out of the production line as a replacement rolls in. This system facilitates the change over by using a trolley that also mounts the drive motors, spray water system, isolation frame and underpan to direct the fine material into the correct part of the plant for further processing.

The project was a local and global collaboration, starting with the design and engineering in the Schenck Process offices in Perth, Sydney, Melbourne and the Hunter Valley. Manufacturing took place in the Schenck Process factories located in Melbourne, Germany and China. The final assembly and testing will be carried out in China; from there, the screen will be shipped directly to site.



Picture: SLK4390WXFS Double Deck Flat Screen fully assembled in the Schenck Process China Facility

Typical Project Application

This is the era of large open-pit copper and gold mines in many districts and countries; it's typical that these mines will use "40 foot" Semi Autogenous Mills (SAG mills) to process the ore, often in more than one production line. Many of these projects will process on multiple parallel lines and use two, three or four screens in producing many thousands of tonnes of copper, gold, molybdenum and other metals to satisfy the world's demand for manufactured products. Ashley said "Schenck Process application knowledge was vital to get this right; understanding how the infeed material behaves as a mixture of rocks, clays and water and manipulate this to achieve the goal of separating the fractions into different streams, this comes only from years of process experience".

The screen is equipped with a CONiQ® condition monitoring system to regularly update the operators on the screen performance indicators and to allow remote data review.

Schenck Process, their client and engineering teams are all engaged and focused on producing an optimum screen installation.



Picture: Gordon Ashley, Schenck Process "Product Expert in Screening"

Gordon Ashley has been with Schenck Process for well over twenty years designing screens.

Schenck Process Australia Pty Ltd
Ground Floor, 65 Epping Road,
North Ryde NSW 2113, Australia
T +61(0)2 98 86 6800
sales@schenckprocess.com.au
www.schenckprocess.com.au

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