Solid Bowl Decanter Centrifuges
– The Alternative Technology

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ABSTRACT

There are several technologies available for thickening and dewatering of mining process slurries. The most commonly used are thickeners and filters, but technological developments have made solid bowl decanter centrifuges a viable option and their use, as a modern and alternative technology, is being considered more and more.

In terms of tailings, the main goal for all mine operation is to minimize operating costs and the environmental impact on the disposed material. The high potential risk of wet tailing storage in tailing dams is causing this technology to become unpopular, and there is a strong drive in many parts of the world, by governments, communities and environmental agencies to limit any further construction and use of such facilities.

For the alternative disposal method of dry disposal of tailings, two aspects of the process have to be evaluated, namely the maximum dryness of the separated solids and the maximum liquid recovery. For most mining operation dry disposal is a new concept. Presenting these companies with examples of operations where this processing option has been successfully applied and proven, will help them to adapt to the changing requirements in the future.

Focus has been placed on adapting decanter centrifuges to the mining environment. Modern decanters stand out in terms of their small footprint, low water demand, high availability and their high degree of automation, combined with the excellent cost / performance ratio. Decanter centrifuges have started to play a key role in applications such as tailing dewatering, drilling and tunneling muds processing, hydrometallurgical processes of gold, nickel or zinc and separating crud in solvent extraction plants.

This paper will present advantages of decanter centrifuges compared to the traditional technology and corroborate these advantages by case studies.