

NATIONAL RESOURCES REVIEW

Derrick's golden plan

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innovative
energy systems





Derrick Linear Motion machines for fine carbon capture.

DERRICK'S GOLDEN PLAN

Derrick Corporation was created 70 years ago to answer some of the most challenging physical separation demands of the mining industry. Throughout the years Derrick has developed some of the finest equipment for efficient gold recovery. Today, this pioneering spirit pulses through the organisation, inspiring continual development of leading-edge solutions. Whether your application is hydrocyclone overflow trash duty, tailings carbon safety, in-tank interstage carbon retention, de-gritting, loaded carbon, carbon sizing, carbon dewatering, gravity protection separation, or carbon column safety, Derrick has your proven solution.

Reducing maintenance and operating costs, improving equipment reliability, enhancing kiln performance and efficiency, and increasing gold recovery. All are key objectives of gold processors. Derrick Corporation offers solutions for fine screening in gold processing plants that effectively address these objectives. When paired with the long-lasting, non-blinding, Polyweb® urethane panels, Derrick machines offer the highest throughput in the smallest available footprint, with an increase in efficiency and profits.

New designs and capabilities permit screens to replace more traditional flowsheet elements. For example, a Derrick Stack Sizer® can replace the hydrocyclones in a grinding circuit, resulting in greater recovery at reduced power consumption per tonne. High flux rates combined with non-blinding screen panel technology, Derrick machines provide superior performance in a small footprint, typically a 4x8 configuration rather than the standard 8x16. This smaller footprint can offer a huge advantage for a gold plant. By replacing old hydrocyclone technology with

modern high frequency vibrating screens such as the Derrick Stack Sizer or SuperStack®, overall plant capacity can increase by 20 to 50 per cent. In contemporary applications, these screens help plants reduce overall water and cyanide consumption to boost the efficiency of the entire plant.

A common bottleneck at gold processing plants is the trash screen. Due to their low capacity, which can lead to frequent overflows, many currently available machines raise plant operating costs by creating unacceptably high plant downtimes. In some cases, panels have even been removed to accommodate production requirements. This underperformance problem can be solved by replacing conventional equipment with a Derrick high-capacity linear motion machine (trash screen), which usually fits into a smaller footprint than competitive equipment. Not only does it require smaller space accommodations, the Derrick machine's higher capacity can also eliminate the need for expensive plant expansion.

Compared to conventional stationary sizing screens, Derrick vibrating units deliver superior value through higher efficiency and mechanical reliability. Blinding and bypassing of conventional screens lowers efficiency and permits high carbon fines to bypass back to the CIL/CIP tanks. The fine carbon then passes through the interstage screens and fails to flow to the carbon stripping circuit. The adsorbed gold is then lost to tailings or recovered by a safety screen as a lower grade product. The result is a significant negative impact on overall gold recovery that can really add up over the life of a plant.

Building on the Polyweb screen technology, Derrick Engineers developed a novel interstage screen, called G-Vault®. The initiative began when a current customer approached Derrick's R&D team to fix a screening problem with their wedge wire interstage screens. Their wedge wire screens needed daily maintenance to maintain capacity at the plant. Constant blinding and plugging triggered a series of daily maintenance requirements. The plant had to remove and power wash the screens daily to maintain acceptable flow. With the screens removed, the plant could not run at full optimisation, and the excessive cleaning severely reduced screen life.

In response to this problem, Derrick mobilised their R&D team to develop a solution to the vexing problems of wedge wire interstage screens. The result was the G-Vault, the first high open area urethane surface interstage screen. The G-Vault extended run times and eliminated blinding and the constant maintenance requirements of wedge-wire screens.

In addition, if an upset in conditions occurs or the screens wear out, only a simple modular urethane cartridge change is required rather than replacing a complete wedge wire screen. This means less downtime and peak efficiency at the plant. With the increased percentage in open area provided by the urethane technology, the plants accrue increases in both flow and production.



To date, many G-Vault screens have now been installed in multiple countries. Designed as a direct bolt-in replacement for the current wedge-wire interstage screens, the G-Vault is easily installed on site. Installation of the new technology, therefore, has little effect on operations, as changing screens is already a known procedure. In addition to improving operations, the G-Vault also benefits the operation's workforce, as it makes room to reallocate resources.

From increasing gold recovery to reducing operating and maintenance costs, the G-Vault is making its mark on the gold processing industry. As a world leader in developing state-of-the-art solutions to improve operations and raise recovery, Derrick is committed to the gold processing industry. Innovative solutions offered by Derrick are reducing waste and raising efficiency to help propel the industry to greater heights and higher profitability.