

A GOLD MINE'S DRAMATIC DROP IN OPEX

APPLICATION DETAILS

- Conveyed medium: Thickened tailings
- Conveying capacity: 80 m³/h
- Dry solids content: 55%
- Particle size: approx. up to 2 mm
- Density of medium: 2.78 kg/dm³

KEY SPECIFICATIONS

- Address excessive power requirements and energy issues
- Extend maintenance cycles
- Efficiently convey abrasive, high solids content

BACKGROUND

In mining, thickeners concentrate slurries by separating solids from liquids, producing a denser underflow. The thickened tailings are then pumped to a storage facility. Pumping these abrasive, high-solid content fluids through pipelines requires durable systems to ensure efficiency and reduce associated costs to a minimum.

A major gold mining company in China faced significant operational challenges stemming from inefficiencies in its tailings slurry transport system. High maintenance costs and short maintenance intervals were key issues, which directly impacted daily mining efficiency.

The company initially invested in a piston pump system, which came with high installation costs. Additionally, the system's significant power consumption and need for costly maintenance every eight months posed ongoing challenges to continuous mining operations.

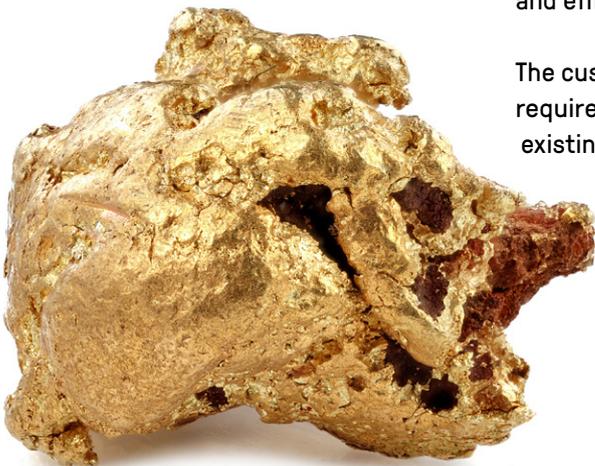
To reduce costs, the company switched from piston to centrifugal pumps. While this meant lower initial investment and reduced spare parts costs, it introduced a new problem – frequent maintenance cycles. Specifically, the impellers had to be replaced every two months, resulting in inefficiency in the mining process.

TASK

The three main challenges for the gold mine were high investment costs, high installation power and high maintenance costs.

The critical task was to find a reliable pumping solution to transport the slurry from the thickener to the tailings storage facility. The slurry, consisting of 55% dry solids with a particle size of up to 2 mm and a density of 2.78 kg/dm³, is highly abrasive. The new system not only had to withstand these harsh conditions, but also reduce the frequency of maintenance and ensure smooth and efficient operation.

The customer's specific requirement was for a pumping system that would only require maintenance every six months, a significant improvement over the existing two-month cycle of the previous pumps. This would improve the mine's operational efficiency and reduce the downtime associated with frequent repairs.



COST SAVINGS**REDUCED OPERATING EXPENSES****CONSISTENT, RELIABLE PERFORMANCE**

SEEPEX PRODUCT

- BN 240-12R pump

Installed BN pump for thickened tailings

SOLUTION

After a thorough site audit and extensive consultation with the customer, SEEPEX proposed the BN pump as the optimal solution. The BN is known for its robustness, reliability and ability to handle highly abrasive media. The block design of the BN pump was particularly advantageous as it simplified maintenance by eliminating the need for additional coupling and alignment work. This design also offers compact pump length, making it ideal for installation in the mine's confined space.



SEEPEX implemented the following changes to improve process efficiency.

- Strategic placement: Position the pump on a sloped foundation to take advantage of gravity and prevent bridging
- Anti-settling measures: Implement design features to prevent solid particles from settling in the pump
- Sound pump selection: Select a four-stage pump to control wear

These tailored recommendations ensure that the pump would operate continuously with minimal wear, extending the maintenance cycle and significantly improving the overall efficiency of the mining operation.

The SEEPEX BN pump was installed in early 2022. Since then, it has operated consistently without needing to replace wearing parts. This performance far exceeded the customer's previous experience with other pumps that required frequent impeller changes. In addition, the BN pump's lower power consumption and superior wear resistance made a strong positive impression on the customer.

The success of this installation has laid a solid foundation for continued cooperation between SEEPEX and the mining company. The improved reliability and efficiency of the tailings slurry handling system has not only reduced operating costs, but also set a new standard for future projects in the mining industry.

BENEFITS

- Improved reliability and increased efficiency
- Significant reduction in operating costs
- Extended maintenance cycles