

Improved Heavy Media Screening Efficiency Results in Rapid Return on Investment – Less than One Month!

- Improved screening efficiency increases recovery and maintains high density heavy media
- Provides improved top size control to prevent coarse gangue from contaminating the undersize product
- ROI for a 1 ton per hour increase in recovery is over 1,000% in the first year of operation

Background

An existing Derrick® customer was struggling with less than satisfactory screening efficiency in their ferrosilicon (FeSi) heavy media circuit. The circuit used inefficient sieve bends to drain the heavy media without water addition and commodity style horizontal screens with spray bars to rinse the fine FeSi entrained in the rejected gangue material from the sieve bend oversize. This resulted in poor recovery of the heavy media due to valuable FeSi fines bypass to the horizontal screen oversize tailings product. Contamination from the undersize heavy media with low Specific Gravity (SG) gangue material. These two factors negatively impact the performance of the heavy media circuit. The high value FeSi being lost to tailings and the low SG contamination of the FeSi in the heavy media circuit had substantial cost and recovery implications for the operation.

Solution

Based on decades of experience, Derrick proposed a Repulp Screening machine for the application. A Repulp machine has a declined screening surface that provides much higher screening efficiency than a horizontal screen due to a more rapid oversize conveyance which creates a thinner oversize bed depth to reduce fines bypass. The Repulp machine also has multiple repulping stations with heavy linear spray bars that discharge into rubber-lined troughs that are designed for rinsing fines from the oversize to maximize undersize recovery.

The Repulp machine combined with Derrick's non-blinding wear-resistant Polyweb® urethane screen surfaces also provides improved top size control to prevent coarse gangue from contaminating the undersize product.



Derrick Repulp Screening Machine Model No. SG48-120R-4

Conclusion

The customer enjoys the performance of the Repulp machine and reports significant financial gains. Based on a FeSi price of US\$1,000 per ton (as of 2018) and 5,000 operating hours per year; a 1 ton per hour increase in FeSi recovery equates to US\$5 million dollars per year. The Return on Investment (ROI) for a 1 ton per hour increase in recovery is over 1,000% in the first year of operation with a payback period of less than 1 month.

DOLLARIZATION	
One Year ROI	>1000%
Payback Period	< 1 month

For more information, please contact your local Derrick sales representative.

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