



LUDECK® NexGen polyurethane significantly increases screening media wear life

A major Iron Ore Producer in the Northern Cape, South Africa recently conducted a multi-supplier wear optimisation study on their vibrating screen panels. FLS, along with several manufacturers, were asked to supply full decks of their most suitable wear materials.

Premium open cast polyurethane panels from FLS were installed side-by-side with multiple different options, including standard TPU Injection Moulded panels, Injection moulded rubber, and other open cast polyurethane options. The application realises high wear rates and the aim was to improve panel wear life to increase cost-effectiveness and availability whilst, decreasing panel maintenance costs.

The following parameters were monitored during the test work period:

- Feed t/hr
- Feed tons (t)
- Durability
- Efficiency
- Cost effectiveness
- Panel maintenance effectiveness

Procedure:

The test work was conducted on multiple sizing screens located in one of their prep plants. The screens received feed from the prep feed bin and were discharged by two vibrating feeders. Sufficient and consistent water was supplied to both screens to ensure

constant parameters. The FLS panels were tested simultaneously with panels from different suppliers, on different screens.





Results:

The panels were installed June 2022 on a double deck scalping screen situated in the beneficiation plant. A competitor’s injection moulded panels were removed from operation and scrapped due to wear just 2 weeks into the trial, as were other injection moulded panels after 1 month being installed. The pattern was repeated regularly and all competitor panels were replaced in the early stages of the trial. In comparison, the NexGen polyurethane screen panel proved to be highly durable and cost-effective, lasting 6 months, with a wear rate significantly outperforming other suppliers’ materials. The fixing bolts had to be replaced four times due to the panel’s longevity and exceptional high wear rate. No panel failures were experienced, and only normal wear and tear was seen on the polyurethane borders. The tonnage passed over the screen was 1.1 million tonnes of -80mm iron ore material. The total screen run hours amounted to 2,622 hours.

SC02	
RPM = 847	
June - 2022	3,99
July - 2022	4,02
August - 2022	3,90
September - 2022	3,84
October - 2022	3,65
November - 2022	3,47

Recommendation:

The NexGen polyurethane material screen panel is a heavy-duty and high-wearing screening solution for large particle iron ore applications. It outperformed other suppliers’ panels and eliminated the downtime caused by module failures, that previously resulted in oversize reporting to the undersize stream. The NexGen polyurethane screen panel apertures remained effective for the duration of the trial by maintaining the installed open area and showing very little signs of pegging.

General comment:

The 6x wear seen in this application is an extreme version of the commonplace observation that open cast polyurethane lasts significantly longer than injection moulded panels. Here, the competitor panels only lasted between 1 to 2 months, whilst, in comparison, the NexGen polyurethane screen panel, at 6 months wear life, proved to be a more robust and high-wearing solution, resulting in a higher plant availability. This outcome was significant for the plant, with much decreased total cost of operation, including reduced maintenance requirements and cost.

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