



# KREBS® gravelMAX™ pumps outlasts the competition

In a side by side trial, the KREBS® gravelMAX™ pump outlasted its competitor. The impeller lasted 1.5 times as long, the suction liner lasted 2 times as long and the casing lasted 2.25 times as long as the competitor's wear parts. During the trial, the customer saved \$73K per year on rebuild parts alone, and experienced a decrease in labor, maintenance time and power consumption expenses. In addition, their operations increased because of the decrease in maintenance.

## Background and objective

A coal mine in Kentucky, USA was seeking improvement in their heavy media cyclone feed application. Their pumps were not achieving the wear life targets for wet end components that were expected by site staff. They were required to rebuild each of the two pumps multiple times per year, costing them in downtime and labor. As part of the plant's continuous improvement process, they decided it was time to consider other options for this pump application.

FLS received the opportunity to provide a longer-lasting solution to the customer's problem.

## Defining the project

In a highly competitive coal market, the continuous operation of equipment is essential for maximising production and revenue. It can take six to eight hours to rebuild large heavy media cyclone feed pumps, which equates to thousands of dollars in lost revenue if the plant does not have standby pumps. Considering the time, expense and hazards that come with replacing worn parts, wear life is vital.

We proposed that the customer install the KREBS® gravelMAX™ pump in one of their two heavy media cyclone feed applications for a side by side comparison of wear life.

**“Customers are extremely pleased in the cost savings received by switching to the gravelMAX™ design and the savings on labor, downtime and power consumption.”**

**Timothy Rhule**  
SENIOR SALES ENGINEER



KREBS® gravelMAX™ 14x12-41 pumping 10,000gpm of dense media cyclone feed slurry to a KREBS® D48 cyclone in United States coal industry.

## The solution

FLS installed the gravelMAX 14x12 pump in one of the customer's two heavy media cyclone feed applications. After installation, our employees would adjust the wear ring periodically to maximise the life of the pump's wet end. FLS would also collaborate with the customer for wear inspections during scheduled downtime to track the wear on the wet end components. The customer's goal was to achieve a year of operation before a complete rebuild of the pump was necessary.

## The results

At the end of the trial, the KREBS gravelMAX 14x12 pump exceeded the customer's target goal.

The impeller lasted an average 6 months, compared with the competitor pump's wear life of 4 months. The suction liner lasted 12 months, compared with the competitor's 6 months. The casing achieved a life of 18 months, significantly outperforming both the one-year target and the competitor pump's 8 months.

The 18 months of pump life before a rebuild was required equated to nearly 20 million tons of solids throughput.

With a significant increase in wear life, the gravelMAX pump has succeeded in this critical heavy media cyclone feed application. Considering only rebuild parts, using the gravelMAX saved the site \$73K per year due to the increased wear life. Additional money was saved by the decrease in labor, maintenance time and power consumption. Financial gains were made due to the extra pump operation time.

After completing trial, the customer made the decision to install the gravelMAX pump in both circuits. We later trained the customer employees on wear ring adjustments, maintenance and best practices for rebuilds to ensure the site maximises the potential of their KREBS pumps.

The customer responded to these results by converting both of their heavy media cyclone feed pumps to gravelMAX™.

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Component	Wear life (months) Competitor pump 14x12	Wear life (months) gravelMAX 14x12
Impeller	4 months (4.4m tons)	6 months (6.6m tons)
Casing	8 months (8m tons)	18 months (19.8m tons)
Suction liner	6 months (6.6m tons)	12 months (13.2m tons)