

Combined Corner Liners

Location	CIS (Commonwealth of Independent States)
Platform	40ft SAG
Conditions	Primary Grinding
Solution	Combined Corner Liners

Situation

Through a Bradken safety share initiative at a customer site, it was identified that the loose steel corner liners in the grinding mill were a hazard during the mill relining process.

The existing steel corner liners were installed in both ends of the 40ft SAG mill weighting 367kg each with a total set mass of 22,020kg. Unsecured corner liners have the potential to come loose, while all other liners are mechanically held in position by liner bolts.

Solution

Following close collaboration with the customer, Bradken developed a new innovative design to remove all loose steel corner liners from the mill set to make mill relining safer.

The Product Development engineers redesigned the Feed End Outer Liner, Shell Liners and Discharge End Grates to eliminate the loose steel corner liners for improved safety.

Using Vision Insight® 3D Scanning data to review wear patterns and the 3D DEM modelling to verify charge motion and trajectories, the engineers were able to eliminate the loose steel corners liners and remove 19,644kgs of liner mass. By utilising virtual simulation, it was verified that all the liners could be installed and removed independent of each other.

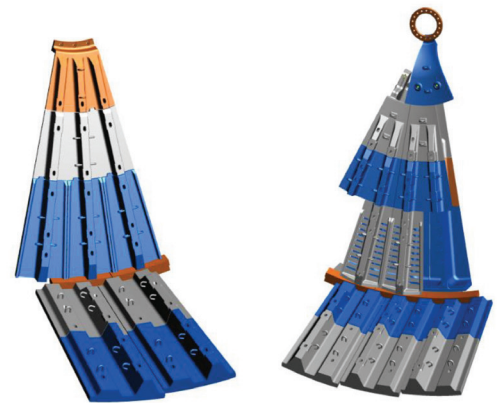
Results

The new liner design improved reline safety for the operation by removing a total of 60 loose steel corners liners and reducing the overall liner set mass by 19,644kgs. The reduction in parts saved 12 hours per mill reline, resulting in increased equipment availability.

Removing the loose steel corner liners from the grinding mill during the mill reline process has improved reline time and provided a safer environment for the mill re-liners to operate in.

Results Summary

- Reduction of 12 hours per mill reline increased equipment availability
- 60 less parts and a reduction of 19,644kgs per liner set reducing manual handling
- Removing loose corner liners provides a safer work environment



Bradken design Vs original design



New installation with loose corner liners eliminated



Vision Insight® 3D scanning