

Secondary Belt Feeders



Feeding - 14" Shot Rock at 800 TPH

Our Secondary Belt Feeders eliminate spillage, boost efficiency and reduce maintenance.



These feeders were fitted with an internal Loading Shoe and a Roller Table.



Internal Loading Shoe is fitted with ceramic liners on the Feeder Walls. Strike-off bar is overhead.



Looking toward the tail of the Loading Shoe. Top left is the engineered ceramic Deadbed Bar that protects the tapered floor of the Shoe.



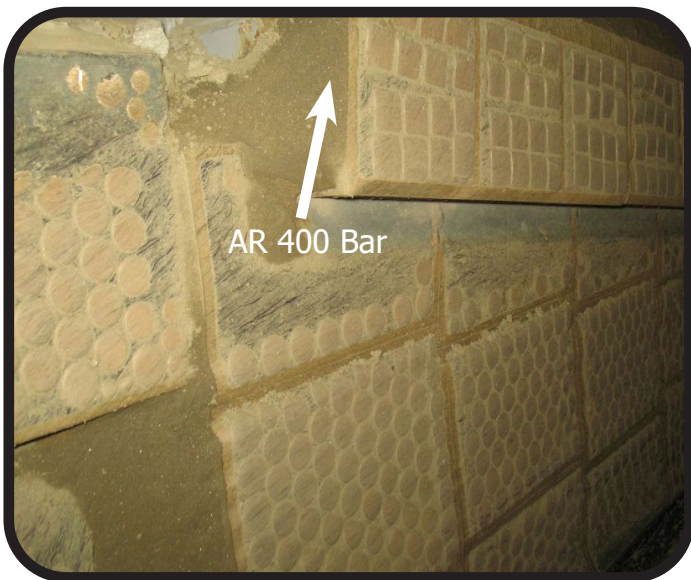
Special geometry is used effectively to relieve the side pressures on the liner package. The liners on the right hand side are inside the Shoe.

Our Guarantee

Feeder performance with "hard, sharp & angular" fed material • Reduced HP and Torque rise on the drive system due to the loading shoe efficiencies • Operation without spillage and dust from the skirting interface to the belt • Uniform full support under the belt with the roller table • No scoring or scuffing under the skirt liners • Reduced tension on the belt from the drive pulley



Our engineering team and support staff is larger and more capable than ever, and you now have a direct association with the manufacturer of the components within the solution. Combining the solid manufacturing capabilities of Valley Rubber with our proven Engineered Solutions provides you with a start-to-finish partner for projects that include field reconnaissance, engineering and manufacturing.



Areas of Relief

The four areas of relief are: Tail to discharge, Belt to Deadbed, Deadbed to Shoe walls and walls to Discharge Canoe Zone. Ceramic cubes are used in the Deadbed liners, and cylinders in the wall sections. Notice the higher wear rate of steel perimeter bar (AR400) versus the ceramic.



Discharge Zone

The discharge zone liners are in excellent condition. These now have an operating lifecycle of 3-5 years. Previously, 2" Hardox 600 liners had a 90 day lifecycle.

The Rubber-Ceramic Liners in this area are held in place with two 1" mounting bolts, attached from the outside of the feeder. This provides a smooth face for uninterrupted material flow out of the feeder. Liner weights are held to manageable limits for removing by hand.

Application

Overview



Top view of the Loading Shoe; oversized rocks are wedged in the tail section. Proper Deadbed of material.



In this example the outside walls were kept in place and a new Roller Table was fitted under the belt. These frames can be withdrawn by two men for roller servicing.



Belt life is drastically improved from 90 days to now over three years...and still going! (This belt was not replaced during the installation of the new upgrade.) Notice the polished smooth top cover that tracks under the new ceramic liners in the Loading Shoe. After three years, it is still unknown how long these belts may ultimately last.

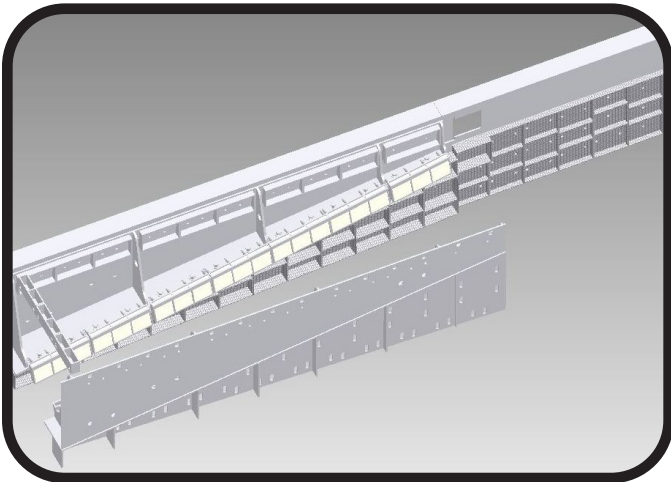
Feeder Features



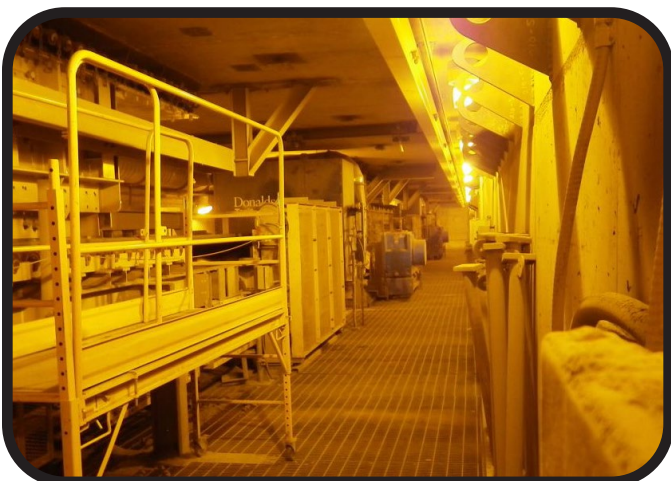
800 TPH of primary crushed ore.



Approximately 1,600 TPH of SAG mill feed.
The rocks are sharp, hard and angular.



Engineering 3D Model.



Three 800 TPH Feeders.

(Left - 3D Model)

Top Floor Deadbed shelf and Ceramic Wear Bars

Internal double-tapered Loading Shoe

Top row Spile Box Shield Liners

Loading Shoe Ceramic Deadbed bars

Loading Shoe Ceramic Wall Liners

Strikeoff bar transition Ceramic Liners

Feeder discharge wall liners

All of these combined features allow for reduced shear forces and longer lifecycle component performance.

(Left gallery of three feeders under the primary surge pile.)

All three feeders were upgraded with the "insert" kit as depicted above in the Autodesk Inventor 3D model. The liner package had to be constructed to navigate around all the existing steel skirting bulkhead bracing, gussets and connection flanges. We standardized the liner sizes to minimize inventory requirements and make liner changes easier. The upgrade packages were installed on three separate feeder-down events.

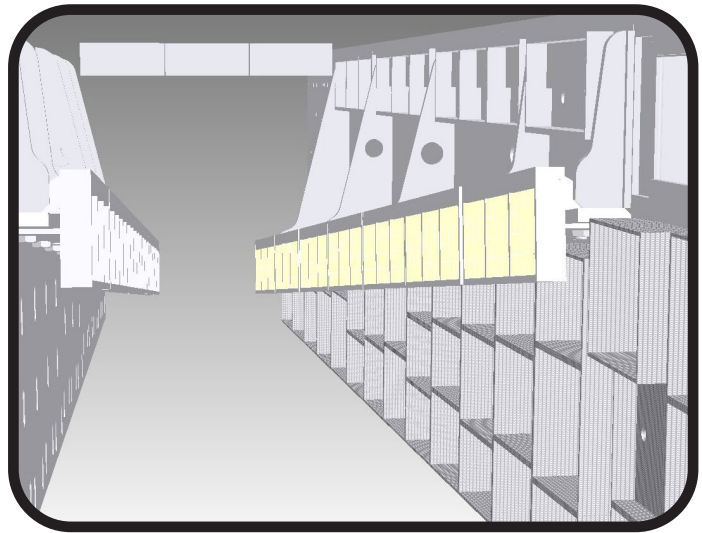
Feeder Customization



Completion of Installation

(Left) The liners on the back wall were left as steel on this retrofit. Notice the rubber skin is covering the ceramic embedded liners in both the Deadbed Bars and the Loading Shoe Wall liners. These liners are custom designed for this feeder application and specific internal steel gusseting, attachment hardware points and retaining steel for the ceramic. Overhead, 2" diameter splice bars.

(Right) All of the components are modeled in 3D, eliminating interference fit issues during installation. Loading Shoe Platform is fabricated 1" plate.



Autodesk Inventor 3D Model



Converted Feeder viewed from the back

(Left) The top of the photo is the plate floor, installed to shorten the excessive length of the feeders. Back door was slightly modified. New Loading Shoe walls can be seen inside the bottom of the trimmed feeder walls. The new Roller Table now evenly and fully supports the belt, eliminating the pinching of material under the liners.