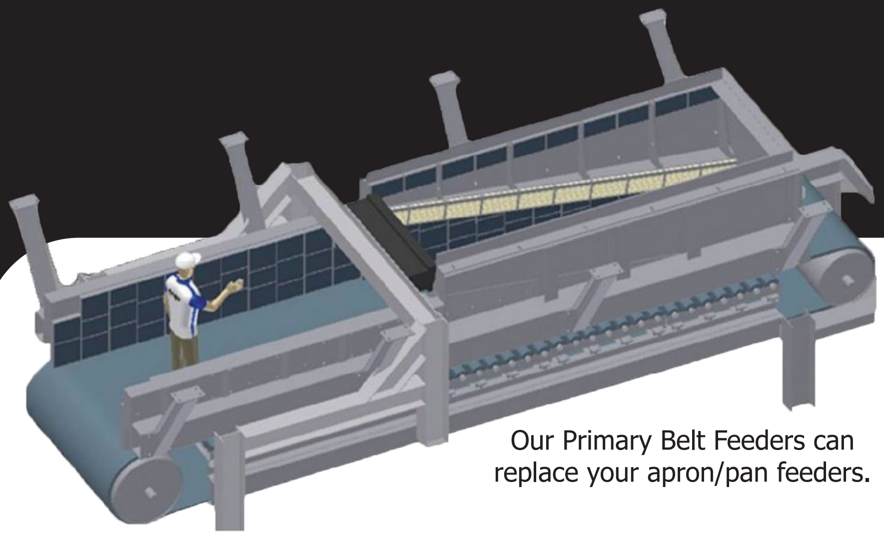
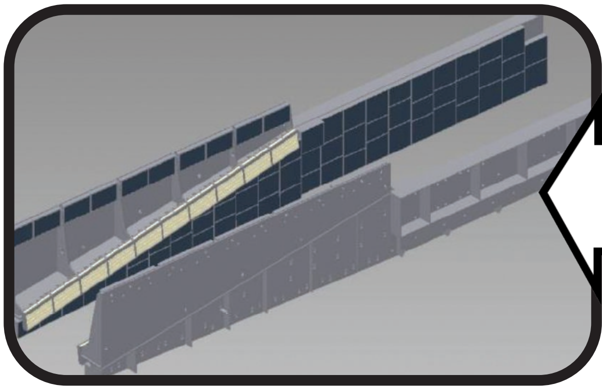
Primary Belt Feeders



Our Primary Belt Feeders can replace your apron/pan feeders.

This system is designed with four main modules for each of the two walls: Loading Shoe and Discharge Skirt.

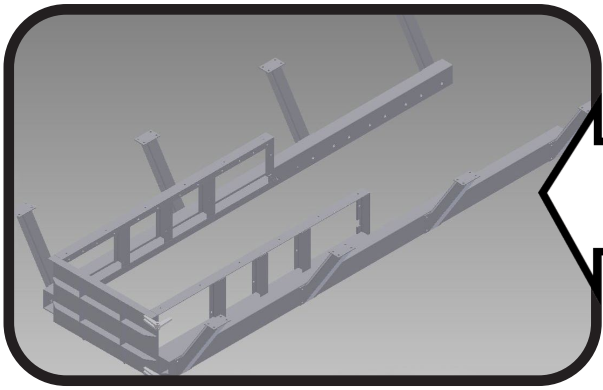
Installation Overview



Two modules: loading shoe & discharge skirt

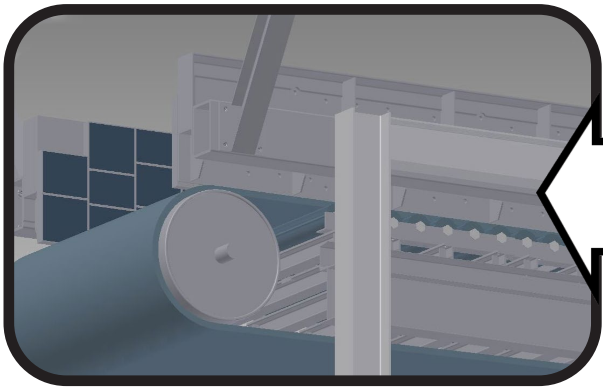
The loading shoe is in the left hand of the photo. The discharge skirt is downstream of the strike-off bar. Both of these are furnished as complete weldments.

Each of these two walls can be installed separately inside of the support frame. All of the modules are assembled together at the plant prior to shipment to assure proper fit.



The back door to the loading shoe is a part of the frame

The next two modules form the support framework for the loading shoe and the discharge skirts. They include the sidewall supports and the longitudinal strong backs for the assembled loading shoe and skirt. Included are the bolt-in knee braces to the floor structure above. The back door to the loading shoe is a part of this frame. All of the subassemblies are bolted together. This requires little or no field fitting.

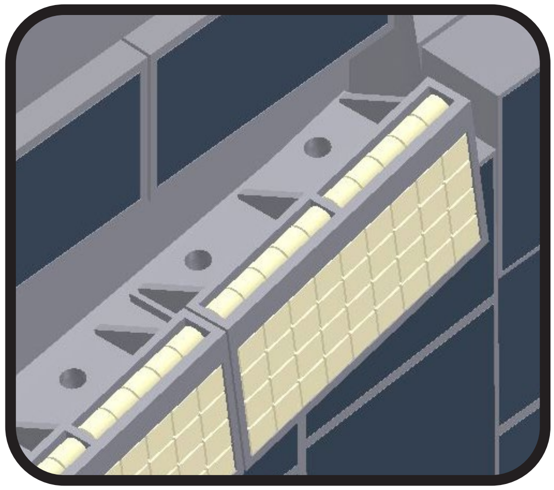


Total assembled weight of the structural elements is approximately 13,000 lbs. per feeder system

The final element of this all-inclusive design is the feeder roller table which is designed to be installed in ten modular cassette trays.
The roller table is extended to the limits of the support bar that is located next to the head pulley. All of the cassette frames can be removed from the side for ease in roller maintenance and replacement.

Performance Guarantee

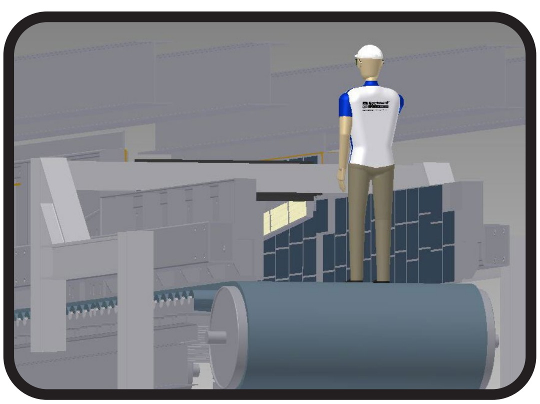
- Operation without spillage and dust from the skirting interface to the belt
- Reduced HP and torque rise on the drive system due to loading shoe efficiencies
- Protection and extended lifecycle on the feeder belt by:
  - Uniform full support under the belt with the roller table
  - No scoring or scuffing under the skirt liners
  - Reduced tension on the belt from the drive pulley
  - Reduced shearing forces on the vulcanized splice
- Feeder performance with " hard, sharp & angular" fed material



Deadbed Liner - This illustration is of the left hand side discharge of the shoe near the strike-off bar. These ceramic and rubber liners have significant internal structure to withstand the heavy shear forces in this loading zone.

Features that control Cost and Maintenance Expenses

- 2" AR600 steel lifecycle was ~90+ days. Rubber-Ceramic liner performance is 8-20 times longer. (An 800%-2,000% increase in wear life)
- Maintenance intervals are now significantly less frequent
- Rear door liners are properly designed to affect a much improved seal on the tail of the loading shoe
- Large rear door will facilitate safer and easier entry into the feeder, negating bridging over the discharge chute at the head pulley for access
- No welding/fitting on this frame or other steel liners
- No cleanup from skirt spillage
- Belt lifecycle is excellent, typically 2-3 years
- Energy savings on the drive, due to reduced torque and belt breakout forces
- No field fitting/welding/cutting of holes and components
- Structure lifecycle is expected to be indefinite/perpetual

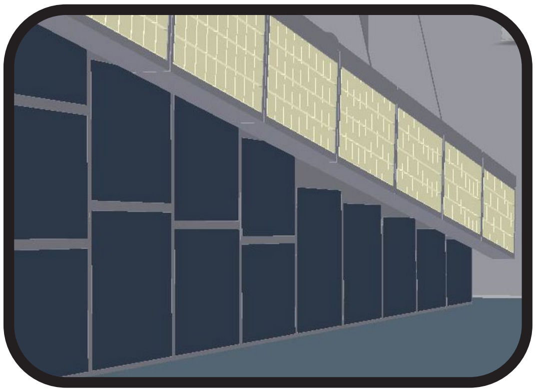


Strikeoff Bar Support, via Overhead Floor Beams

Typical as-designed support configuration is depicted as lighter shaded structure. Notice the overhead 18" deep beams., A more cost effective design are feeders rigidly secured to the floor below. Thrust forces are significantly minimized with our loading shoe design and any additional structure in the frame of the feeder is minimal.

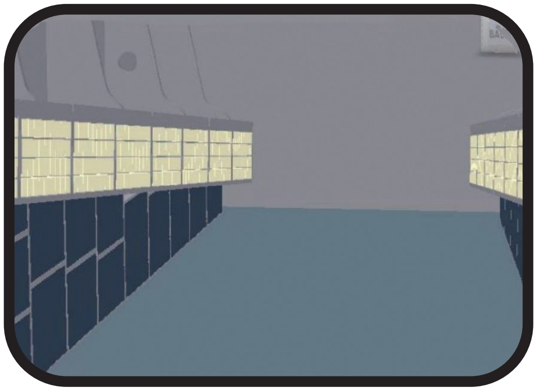
Feeder
Design

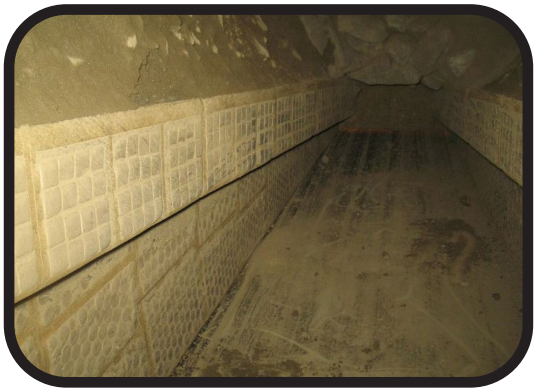
Loading Shoe Performance and Concept



Model of a 72″ feeder

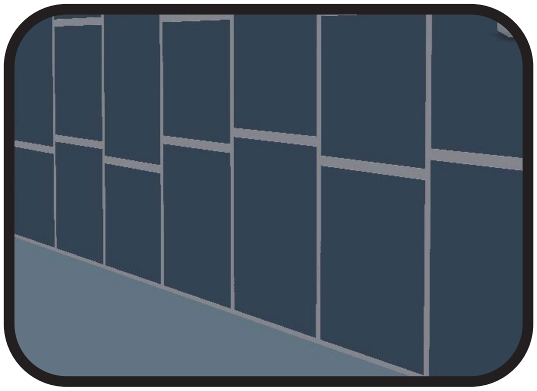
Existing loading shoe in a 60″ Feeder taken at 50 weeks





The liners on the wall, (under the loading shoe Deadbed Ceramic Bars), have been in operation for 114 weeks as of the date of this photo. Previously 2″ AR600 operated for 12-14 weeks. The ceramic is lasting ten to twelve times longer. As is usually the case, different zones in the feeder have different wear rates depending upon location.

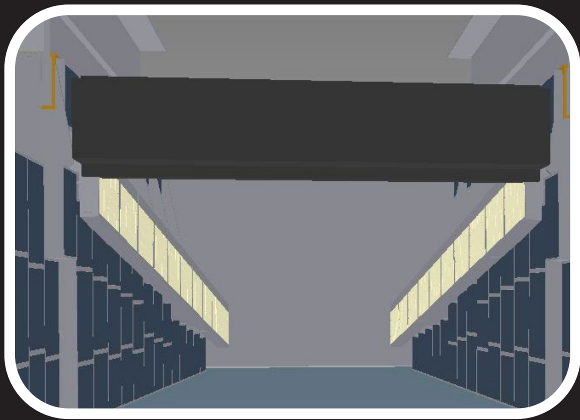
Discharge Wall Liners



Model of the discharge wall downstream of the Loading Shoe

Model of a 72″ feeder

Strikeoff Zone

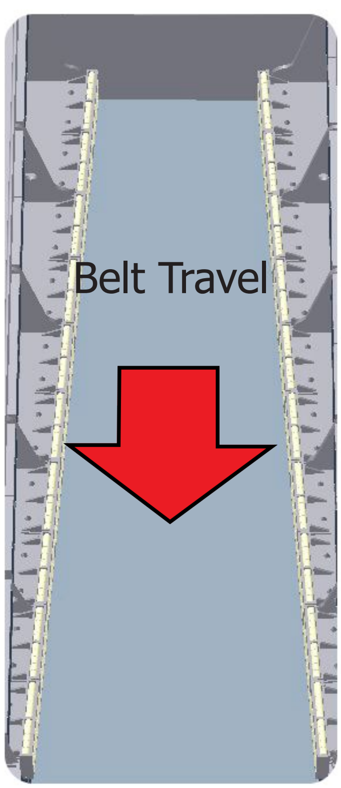


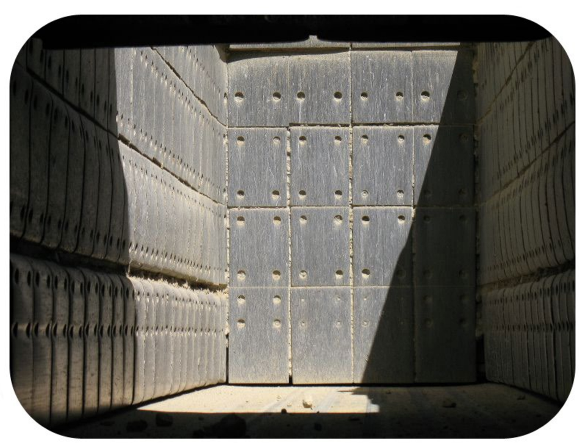
One of the key features of the Feeder System is the modulating of forces within the feeder drawdown compartment into the loading shoe. Specific to this is the proper placement and geometric design of the liners in the flow-zone surrounding the strikeoff bar. This is critical if liner performance and belt life are to be maximized. The optimum configuration allows for material to move with the belt and not be pulled and or sheared by the belt.

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.

(Below) Top view of the double-tapered Loading Shoe. This is a significant reason for the reduction in shear forces in the drawdown and transition zone within the feeder.

Footprint Geometry Loading Shoe





(Above) 60" feeder during a 2008 maintenance outage. Notice the straight walls that allow rock to be loaded down hard onto the belt. Liner lifecycle in this area is about 90 days.

Cost Effectiveness Comparison

Steel vs. Rubber-Ceramic

In the location pictured, the custom designed Rubber-Ceramic liners are over 7 times more cost effective than the previous steel liners. This does not take into account labor or hardware replacements for the steel liners. such as countersink bolts.

AR600 Steel (2" thick)

Lifecycle; approximately 90 Days
Cost/ft^2 ~= $450.00
Cost/week = $450.0/14 = $32.00/week

Rubber-Ceramic (2" thick)

Pictured Above; 114 Weeks and still running...
Cost/ft^2 ~= $482.00
Cost/week = $482.00/114 = $4.22/week

Cost effective basis:

Steel @ $32.00/week
Ceramic @ $4.22/week
32/4.22 = 7.5 Or...Ceramic is 7.5 times more cost effective.