



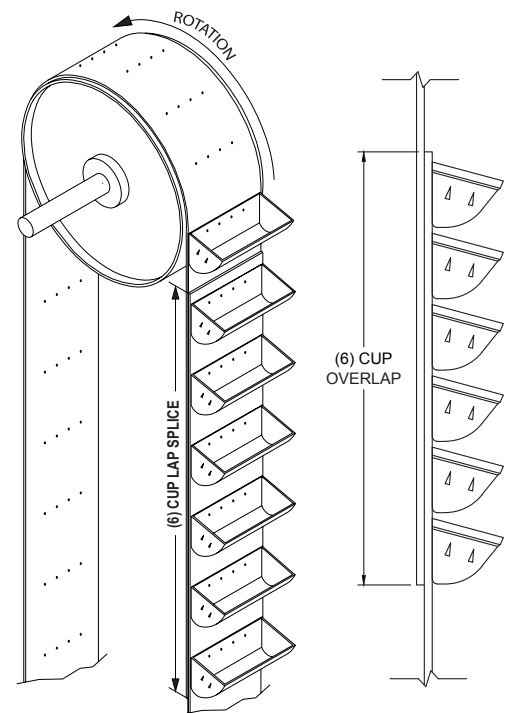
Grain Securing Overlap Belt Splices

Challenge



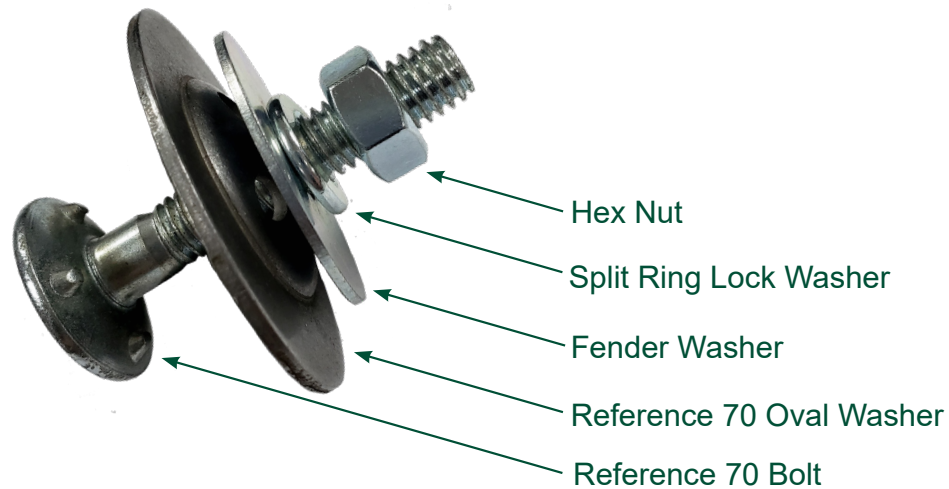
A grain storage facility of a large North American trading company was concerned that the bolts used to secure the overlap splice section of an elevator leg belt were prone to pull through. The nature of an overlap splice generates additional stress on the bolts in many ways. The two layers of belting are subjected to uneven contact force from the drive pulley. This makes the inside belt flex more than the outside belt. Additionally, the weight of the loaded elevator buckets pulls on the splice bolts. The bolts can snap or the heads can pull through the belt. A compromised belt splice can diminish efficiency and in the worst case, drop a fully loaded belt with buckets down the elevator leg casing and into the boot.

OVERLAP BELT SPLICE



Solution

The solution was twofold and encompassed using 4B brand Reference 70 elevator bolts. The elevator buckets normally secured to the belt used 5/16" diameter bolts. 4B Components supplied larger 3/8" diameter bolts for use on the overlap splice. The larger diameter bolts have a greater tensile strength to tolerate the environment of an overlap splice. Secondly, the Reference 70 bolts incorporate a unique oversized oval washer into the bolt head, which covers a large surface area on the belt, therefore spreading the pull-through force over a greater surface area. No other style of elevator bolt is able to cover such a large area of belt.



Reference 70 bolts (installed on the splice) with Reference 70 oval washers oriented horizontally across the belt to minimize stress as they pass around the pulley



Results

- The use of the 4B brand Reference 70 bolt system helps prevent bolt head pull through at the overlap splice on elevator leg belts
- The overlap splice is much stronger and had less risk of being compromised
- Stronger bolts are less prone to snapping



4B Braime Clamp



Gripwell



Supergrip



Vise Splice