

Factors to consider before splicing your belt.

by Chip Winiarski

**B**elt skivers remove a conveyor belt's cover to prepare a belt for countersunk fasteners. A skiver is specially designed to help ensure quick, safe, and accurate cover removal at various depths. It eliminates imprecise and potentially dangerous cuts that can result from hand-knife skiving. It is also a cleaner and faster alternative to a router, since the skiver removes the top cover as one continuous strip, and does so in only a few minutes. This makes skivers an invaluable tool for the belt repair process.

Mechanical conveyor-belt splicing, usually involving hinged- or solid-plate fasteners (clips) attached to the belt with bolts or rivets, is widely used in heavy-duty operations because of its relatively low cost, as well as ease and speed of installation. However, abrasiveness and density can vary widely, increasing the potential for premature splice wear and failure.

### Why skive?

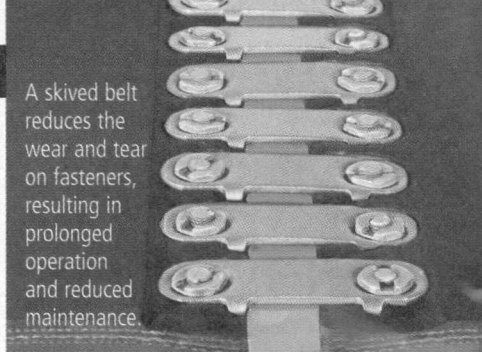
There are many reasons why it is important to skive a belt. In most cases, skiving will save both time and money throughout the production process, and it does not weaken a conveyor belt. All of the strength is found in the carcass, and the cover is in place to simply protect it.

When you skive a belt, you replace this protective rubber with the belt fasteners that will protect the belt and keep it moving to maximize production. You do

not want to remove all of the cover, but rather leave 1/16 of an inch in place to provide protection from elements such as water and sun.

Benefits from skiving a belt include the following:

- **Achieving a lower profile.**  
Since skiving a belt removes the top layer from the belt, it leaves room for the fasteners to lie evenly with or below the rest of the belt surface. This is a benefit for any operation because it reduces the chance of the fasteners catching themselves on any belt components or the conveyor structure itself.
- **Extending splice life.**  
A properly skived belt will last much longer because it creates a lower profile, preventing excess wear and tear on the fasteners.
- **Ensuring compatibility with belt cleaners.**  
When a belt is skived, belt cleaners and other conveyor components are able to work on a relatively smooth surface in which the belt fasteners and belt cleaners work effectively together. Not only does this create a compatible surface for cleaners, it also increases cleaner blade and fastener life. Manufacturers who produce both fasteners and cleaners can provide advice on the interface between fasteners and cleaners.
- **Improving wear of fasteners when used with skirting.**



A skived belt reduces the wear and tear on fasteners, resulting in prolonged operation and reduced maintenance.

A skived belt reduces the wear and tear that the skirting and fasteners are subjected to, resulting in prolonged operation and reduced maintenance. By placing the top of the fasteners beneath the lower edge of the skirt rubber, excessive wear on both items is eliminated.

- **Creating stronger splices.**

When a belt is skived, it removes the top rubber layer from the belt, placing the top and bottom plates of each fastener closer together, ensuring that the teeth are properly engaged into the carcass. This results in improved strength of the belt splice.

For all of these reasons, skiving is highly recommended when splicing a belt. However, there are some reasons why skiving might not be chosen, including the following:

- **The top cover is worn.**

When the top cover is very thin or worn, skiving would not be recommended.

- **The wrong fastener size is being used.**

Belt thickness is but one of several factors used to determine fastener size. If an operator is using the wrong size fastener, skiving the belt would adversely affect the fasteners.

- **Time pressure prevents proper skiving.**

Sometimes in a time crunch, proper skiving of a belt is overlooked in an attempt to minimize downtime. Generally speaking, this is counter-productive. Although this initially does save time, it will eventually result in additional down time.

## Choosing the right tool

Traditional skiving tools typically employ a wide cutting head drawn across the belt by a manual winch

and guided by a lightweight aluminum track. A stirrup-shaped blade, mounted in the cutting head, adjusts in 2-mm (1/16-inch) increments to a maximum depth of 14 mm (1/2 inch). Adjustment allows the blade to remove the desired amount of belt top cover cleanly, smoothly, and uniformly in one pass. This leaves a flat-bottomed trough with rounded lower corners to prevent the adjacent belt cover material from tearing

along the bottom edge.

With some skivers, the cutting head also features a cut-off blade that adjusts vertically for belts up to 35 mm (1-3/8 inch) thick. A second pass of the head with this blade extended makes a clean, square, and straight cut along the bottom of the skived area, establishing a finished belt end by trimming the trough for the selected fastener size.

Newer, compact belt skivers eliminate the guide track and winch, as well as the need to nail down the belt, while enabling fast, easy removal of conveyor-belt cover material. Employing an integral ratchet-driven roller design, these hand-operated tools carve a flat-bottomed trough as deep as 10 mm (3/8 inch) in a single pass. The multiple-pass capability of these skivers allows for deeper skiving in rubber and synthetic belts up to 32 mm (1-1/4 inch) thick. A range of user-selected widths accommodates varying belt-fastener sizes.

## Operation and care

Operating begins with simple manual adjustments for desired skive depth and width. With the skiver properly positioned and secured on the belt end, users ratchet the tool across the width of the belt with one hand while guiding the tool with the other. Two pairs of rollers — each featuring a serrated upper and smooth lower roller — clamp the belt as the serrated rollers grip the top cover and drive the skiver, pulling a special steel blade through the belting. The skived belt cover comes off in one continuous strip.

Easy hand-screw adjustment of roller tension allows optimum operation, preventing water and dirt from affecting the drive. The resulting flat-bottomed trough features a rounded inside corner to prevent the belt cover from splitting.

For maximum, ongoing performance, skivers should be cleaned after each use and kept in a clean, dry area. Although the tools are rugged and durable, care should be taken to avoid dropping or tossing them. Both the top and bottom edges of the blades should be examined, making sure they are sharp and undamaged. Some skiver designs enable the blade to be sharpened while it is attached to the tool.

Properly selected and used, skivers provide precise and uniform cuts and eliminate the perils and injury potential associated with a hand knife. Both in terms of safety and conveyor productivity, they are tools that may pay for themselves many times over. **AM**

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