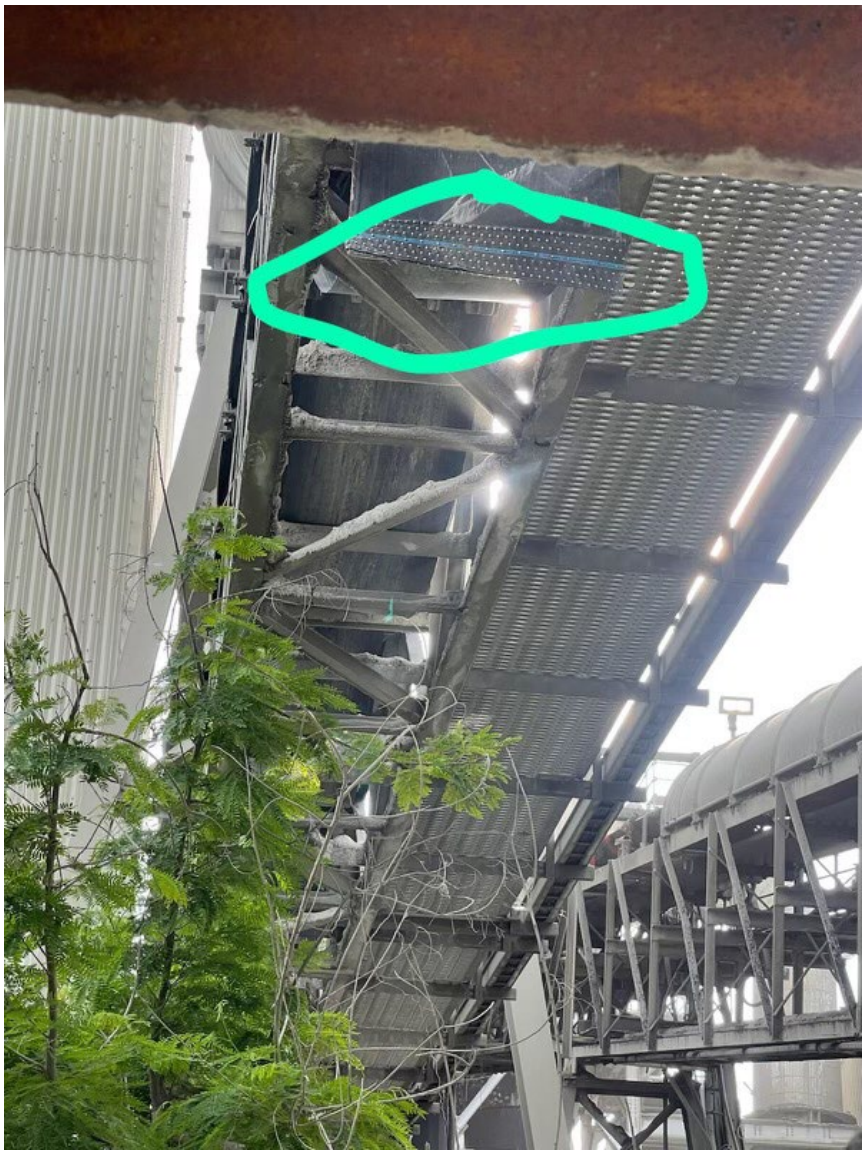
April 2022 Case Study
Proper Selection & Installation of a Superscrew Splice

Davis Industrial technicians recently completed emergency repairs for a customer who suffered catastrophic splice failure during after-hours production. According to the customer, this splice lasted a single revolution of the system. Our highly trained, 24/7 emergency team responded to the site and immediately began assessing the problem to develop a solution. After completing the repairs, the splice was returned to our shop for evaluation. Several factors were immediately observed which contributed to the complete failure and unnecessary downtime for this customer. While a highly reliable product, mechanical splices must be installed properly to gain the advantages of high strength and durability.



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The comprehensive evaluation revealed the following:

- The splice was too big for the application.

In this case, the splice selected was much too large for the belt. When the selected splice is too large, it subjects the plies to excessive wear by preventing the splice from moving with the belt. Instead of moving smoothly with the belt, it constantly works against it. An oversized splice may provide additional complications based on the minimum pulley diameters set by the manufacturer. Minimum pulley diameters are set with the intention of not overly stressing the splice around a too small or too large of a pulley diameter. Further to this, there could be troughing complications due to the rigidity of the splice, which could provide spillage issues.

- Not skived properly.

It is imperative that skiving is done at the proper depth consistently across the application. This allows the splice to sit flush with the top cover of the belt, which reduces contact with belt cleaner systems, preventing excessive wear to the splice. In this case, the skiving was done inconsistently resulting in uneven bulges in both the splice top cover and the screws protruding through the plates on the underside of the belt. Not only does this weaken the splice, but the screws damage the conveyor components with every revolution.

- Screw length is too long.

In addition to skiving issues, the screws selected for the application were far too long. This resulted in significant protrusion which damages the components the belt touches. This can be mitigated through grinding or cutting, but this was not done either. Accounting for the shank size on these screws, it is unlikely the required tension was even achievable with a splice too large for the belt.

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- Plies were cut or damaged when skiving the belt.

Skiving must be done with care. The most damaging discovery made in this evaluation was the damage to the plies holding the splice together. If the fabric is cut during installation, there is nothing to bind the two edges of belt. The pictures depicting the failure show the result of damaged plies; the belt hanging in two pieces. Note the clean cut just prior to the ply tearing in the below picture.

Two other issues of note, the gap between the belt edges is too large, the center screws have nothing to grab on to. The belt is not properly aligned from left to right. This would result in a crooked splice and a challenge to keep the belt running true.

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- Splice was not installed on a bias.

While not devastating on its own, a splice not set on an angled bias subjects it to all of the tension created while transitioning the conveyor system pulleys, at the same time. Coupled with the other factors described in this installation, that stress was too much for the splice to hold.

Not all installations are created equal!
With whom do you entrust your productivity and profitability?
Davis Industrial supplies highly trained conveyor technicians 24/7 to satisfy all your conveyor needs.
Reach out for a quote today!

SUPER-SCREW ORIGINAL

The historical product

★★

Permanent solution

Abrasion resistant (50 mm³) | Heat resistant | Fire resistant | Oil resistant | Heat retardant | Very low temperature

Packaging :

- **85 - 105 :** In roll of 5, 7.5 and 15 m.
- **125 - 250 :** In roll of 3, 5, 10 and 15 m.
- In Kit, pre-assembled and cut to length, for belt widhts of 800, 1000, 1200, 1400, 1600 mm.

Includes:

- Installation tools
- customization*

Type	Thickness of the splice	
	Top	Bottom
85	7.5 mm (5/16'')	4.5 mm (3/16'')
100	7.5 mm (5/16'')	4.5 mm (3/16'')
105	9 mm (3 1/8'')	4.5 mm (3/16'')

SUPER-SCREW EVOLUTION

The new generation

★★★

Permanent solution

Abrasion resistant (50 mm³) | Heat resistant | Fire resistant | Oil resistant | Heat retardant | Very low temperature | Food white

Packaging :

- In roll of 3 or 5**, 10 and 25 m
- In Kit, pre-assembled and cut to length, for belt widhts of 500, 650, 800, 1000, 1200 mm.
- White food grade version available in 2000 mm length only

Includes:

- Installation tools
- customization*

Type	Thickness of the splice	
	Top	Bottom
35	3.5 mm (1/8'')	3 mm (1/8'')
50	4 mm (1/8'')	3 mm (1/8'')
63	6 mm (1/4'')	3 mm (1/8'')
80	6 mm (1/4'')	4.7 mm (3/16'')

SUPER-SCREW SECURITY

The security *(Security indicator)*

★★★★

Permanent solution

Abrasion resistant (50 mm³) | Heat resistant | Fire resistant | Oil resistant | Heat retardant | Very low temperature

Packaging :

- **65 - 100 :** In roll of 3 or 5**, 10 and 25 m.
- **105 :** In roll of 3 or 5**, 10 and 15 m.
- In Kit, pre-assembled and cut to length, for belt widhts of 650, 800, 1000, 1200, 1400 mm.

Includes:

- Installation tools
- customization*

Type	Thickness of the splice	
	Top	Bottom
65	6 mm (1/4'')	3 mm (1/8'')
85	8 mm (5/16'')	4.7 mm (3/16'')
100	8 mm (5/16'')	4.7 mm (3/16'')
105	10 mm (5/16'')	4.7 mm (3/16'')

SUPER-SCREW PREMIUM

High performance *(Polyurethane)*

★★★★★

Permanent solution

Abrasion resistant (15 mm³) | Oil resistant

Packaging :

- In Kit, pre-assembled and cut to length, fo belt widhts of 650, 800, 1000, 1200, 1400, 2000, 3000 mm.

Includes:

- Installation tools
- Spacers / 2 screw sizes / PZ bit
- customization*
- Easy Screw Solution

Type	Thickness of the splice	
	Top	Bottom
65	6 ou 8 mm (1/4 or 5/16'')	3 mm (1/8'')
85	8 ou 10 mm (5/16'')	4.7 mm (3/16'')
105	8 ou 10 mm (5/16'')	4.7 mm (3/16'')

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