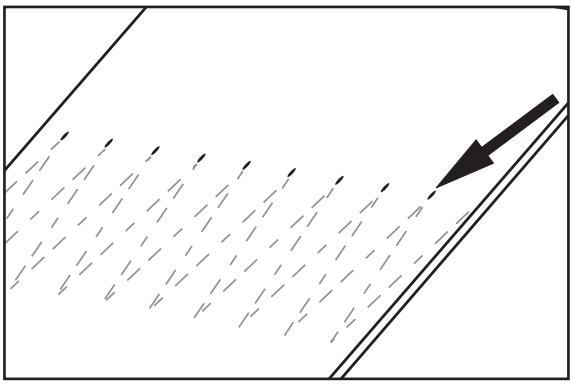
INSIGHTS™
Belt Conveyor Maintenance
TECHNICAL SOLUTIONS FOR BELT CONVEYOR PRODUCTIVITY

Endlessing - Avoiding Pinholes and Air Bubbles

Regular heat presses are one of the most commonly used tools for splicing thermoplastic conveyor belting. This process can sometimes be challenging and produce imperfect results. Limited control of the thermoplastic material flow with thinner belt types can lead to pinholes and air bubbles in the belting material. Proper tooling, high quality machinery, and consistent settings can help prevent this problem.



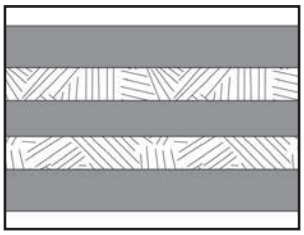
Pinholes can occur at various places along the splice lines, but are most common at the fingertips because the gap there is frequently wider.

Why do pinholes and air bubbles develop?

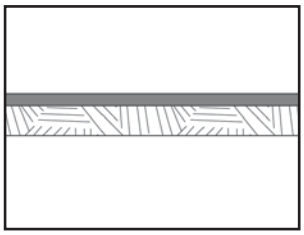
Most problems begin with very thin belts and belt materials with a less favorable ratio of thermoplastic material to polyester fabric. Considering the unevenness of the fabric thickness, there will be areas with little-to-no thermoplastic materials during the splicing process. This condition limits the possibility for the material to flow to spots where it is needed to fill gaps.

The Illustrations following show two belt types – one with a ratio of 2 : 1 (2 mm of PVC and 1.1 mm of fabric), which is easy to splice, and one type with a ratio 1 : 2 (0.25 mm Polyurethane and 0.5 mm fabric), which is more likely to show pinholes and air bubbles when being spliced.

Another problem arises when the fabric shrinks while being heated. With finger joints, this will create holes in the tips of the fingers and more space between finger edges. When step joints are prepared, one of the top



Two ply PVC belt
Ratio thermoplast: fabric=2:1



Single ply PU belt
Ratio thermoplast: fabric=1:2

fabrics is often tucked below the fabric on the other belt end. This scenario causes the belt to be thicker at the edges of the joint. This difference in thickness causes uneven pressure across the joint area and limits the transfer of heat from the press platens to the belt.

Does foil eliminate pinholes and air bubbles?

Most people opt to use foil as a remedy to solve these problems, which is a logical choice and does work. However, it does not work with optimal results. When foil is placed in a joint, material is added, which may lead to a loss of flexibility. Flexibility should not be compromised when working with joints. Also, foils sometimes have properties that differ from the belt cover, resulting in color contrast or slight performance-related issues. In order to avoid compromising the joint, creating a joint without the use of foil is the preferred method.

The role of press pads in endless splicing

In order to compensate for this difference in thickness, the use of press pads is often effective. In addition to compensating for the difference in thickness, press pads can also improve the quality of the joints of thinner belt types. Unlike foil, no additional material is added to the process, which means flexibility is not compromised in the process.

What kinds of press pads work best?

There are different styles of press pads on the market, but silicone tends to be the most effective material with this process. Silicone has very good elastic properties and can therefore be used multiple times versus alternatives like molton cloth.

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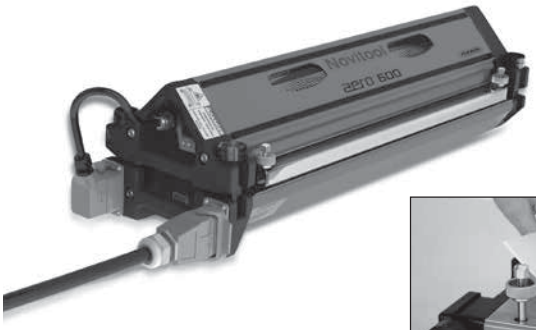
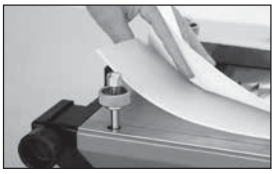
Silicone pads from Flexco

Flexco offers silicone pads for use with the **Aero® Press**, a portable, onsite press that features a built-in air compressor, integrated digital controls, and short cycle times. The pads are available in a 3 mm thickness and can be stacked to compensate for larger thickness differences.





Flexco silicone pads are used with the Aero® Press.

Silicone Press Pads And Cloths

Thickness		Material	Length		Compatible With	Ordering Number	Item Code
in.	mm		in.	mm			
.020	0.5	Silicone Cloth	12	300	Aero-300	AERO-S10.5-300	08103
.020	0.5	Silicone Cloth	24	600	Aero-600	AERO-S10.5-600	08104
.020	0.5	Silicone Cloth	36	900	Aero-900	AERO-S10.5-900	08105
.020	0.5	Silicone Cloth	48	1200	Aero-1200	AERO-S10.5-1200	08106
.020	0.5	Silicone Cloth	60	1500	Aero-1500	AERO-S10.5-1500	08107
.020	0.5	Silicone Cloth		10M		AERO-S10.5-10M	08108

Thickness		Material	Length		Compatible With	Ordering Number	Item Code
in.	mm		in.	mm			
.12	3.0	Silicone Pad	12	300	Aero-300	AERO-S13-300	08109
.12	3.0	Silicone Pad	24	600	Aero-600	AERO-S13-600	08110
.12	3.0	Silicone Pad	36	900	Aero-900	AERO-S13-900	08111
.12	3.0	Silicone Pad	48	1200	Aero-1200	AERO-S13-1200	08112
.12	3.0	Silicone Pad	60	1500	Aero-1500	AERO-S13-1500	08113

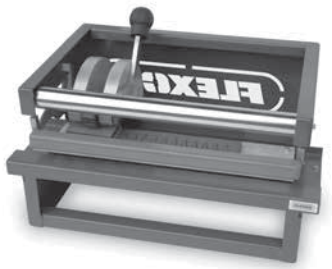
Also available from Flexco

Flexco offers belt fabrication products for a variety of applications.

The Ply 130™ separator from Flexco is designed to easily split a variety of thermoplastic belts. The easy-to-operate Ply 130 features robust construction, as well as consistent results for both finger-over-finger and stepped splice preparation in only one pass. With the Ply 130, only two adjustments need to be made before the job starts – setting the blade position where the fabric layers need to be separated and setting the depth minimum or maximum.

Ply 130™ Separator

The Pun M™ mobile finger punch from Flexco is a faster alternative to a chisel and hammer, producing more accurate straight finger and finger-over-finger punches. The lightweight, ergonomic design of the Pun M makes it easy to set up and operate for on-the-job repairs, while its speed has solidified its place in the workshop as well. No external energy source is required as the Pun M operates solely on manpower.



Pun M™ Mobile Finger Punch

Patent number: US 9,090,022 B1

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