INSIGHTS™
Belt Conveyor Maintenance
TECHNICAL SOLUTIONS FOR BELT CONVEYOR PRODUCTIVITY

Endlessing Options: Air-cooled or Water-cooled?

The basic function of a splice press for thermoplastic belts is to apply heat, pressure, and cooling after an appropriate heat and pressure exposure time.

After the plastic is molten and voids are filled, it is ideal to cool the belt splice as soon as possible for two main reasons. First, prolonged high temperatures cause some fabric plies to contract or shrink, creating a splice which is not flat or is weakened. And second, some belt materials excrete softeners when heated, which reduces the splice flexibility and may cause premature cracking. Because of these reasons, it is recommended to cool down the conveyor belt splice as soon as the melted plastic has filled all voids, in the shortest time span possible.

There are two basic methods for cooling the splice: water cooling or air cooling.

Water-cooled splicing

The traditional method of cooling the splice and press involves water as the cooling agent. Since water has superb conductive characteristics and a high capacity

Filling the water tank on a water-cooled press can be tricky and messy.

to absorb temperature, it is very efficient for bringing temperatures down. With this method, a large difference between the temperature of the cold water and the hot belt splice initially drops the splice temperature quickly.

As the splice begins to cool, this temperature difference becomes smaller and the final cooling slows. The speed of the cooling process is also dependent upon the size and weight of the press. Traditional water-cooled splice presses are made with heavy aluminum bodies and splicing plates. Prior to cooling the splice, water must first cool the large aluminum mass of the platens. The water gradually warms as it circulates through the press, making the cooling less efficient. As the platens are cooled, the belt splice is simultaneously cooled.

On average, a water-cooled press will need 10 to 20 minutes to cool down from 320° F (160°C) to 140° F (60°C). However, that is not all you need to consider when factoring in downtime for water-cooled splicing. Water cooling requires the operator to bring water, a water tank, and multiple water hoses to the jobsite. All of these components need to be set up before even beginning the splicing process. If the splice press operator does not arrive with a full water tank, a water source needs to be found and the tanks need to be filled onsite. The components also need to be disassembled after the splice, requiring additional downtime.

In food production applications, the threat of bacteria harboring in water containers is a concern. As a matter of "best practices," many operations prohibit water-cooled presses because the hoses and tanks could contain water-borne bacteria. Some operations require all equipment to be sanitized under close inspection at their facilities before allowing workers to enter.

Air-cooled splicing

The other method of cooling is air cooling. When combined with a lightweight press design, air-cooling can bring significant time savings to the splicing process. Newer, lightweight presses are designed with less overall mass that needs to be cooled, making air cooling a viable option. These forced-air cooled presses offer the user convenience by not having to source and transport water to the conveyor, which also limits the chances of introducing bacteria to the belt.

The most efficient air-cooled press can cool down to 60°C (140° F) in three to five minutes. Air-cooled presses are also usually all-in-one machines that can be set up and taken down in only a matter of minutes, unlike traditional water-cooled presses. Onsite crews are also more likely to have an air-cooled press because they commonly weigh less and are easier to transport and handle.

Your best option

Operations are increasingly looking for production efficiencies in bringing product to the market. Minimizing production interruptions and ensuring food safety are critical concerns in achieving efficiencies. When considering the best way to splice food processing belts, it is not only appropriate to consider sanitation, performance, and reliability; it is important to consider if the splice installation method also meets these objectives.

INSIGHTS™

Novitool® Aero® Portable Splice Press from Flexco

The Aero® Press is optimized in its design for quick cycle time from warm up to cool down. The press is lightweight for easy transport to the jobsite, has integrated controls, an air compressor, and forced-air cooling. The engineered lightweight design has been optimized to allow for both quick heating and cooling of the splice, ensuring the quality and long life of the splice.

Features and Benefits of the Aero® Press:

- Only 7 - 12 minutes to splice a conveyor belt
- Easy to operate & excellent splice repeatability
- Integrated temperature control, air pressurization, and air cooling
- All-in-one unit, no external components
- Transport case included with the splice press
- Available in 5 Sizes: 12" (300 mm), 24" (600 mm), 36" (900 mm), 48" (1200 mm), 60" (1500 mm)
- Workshop Stand for use with 36" (900 mm), 48" (1200 mm), and 60" (1500 mm)

Other endless splicing tools from Flexco:

Novitool® Pun M™ Mobile Finger Punch

The Pun M™ is designed to effortlessly punch fingers into PU and PVC conveyor belts in preparation for installing vulcanized splices.

Novitool® Ply 130™ Ply Separator

The Ply 130™ is used to separate plies of a conveyor belt in preparation before splicing a belt with a splice press. The Ply 130 can precisely separate as deep as 5" (130 mm) in one action.

Patent number: US 9,090,022 B1

2525 Wisconsin Avenue • Downers Grove, IL 60515-4200 • USA
Tel: (630) 971-0150 • Fax: (630) 971-1180 • E-mail: info@flexco.com

Visit **www.flexco.com** for other Flexco locations and products.

FLEXCO

Partners in Productivity