INSIGHTS™
Belt Conveyor Maintenance
TECHNICAL SOLUTIONS FOR BELT CONVEYOR PRODUCTIVITY

Endless Splicing: Why Voltage Matters

Voltage is a force that causes electricity to move through a wire, and is measured in "volts." With electrical potential between two points, there is the possibility to have increased power at one end, over the other. So it only makes sense that the more voltage you have, the more power available to run your splice press. But the amount of available voltage can sometimes vary, and that makes a difference during the belt splicing process.

If you've noticed that the total time it takes to splice a belt from start to finish varies, even when the same recipe is utilized, then you may have been a victim of the voltage variance. And that voltage is dependent on several factors, including type of building, time of day, and even time of year.

A case study in voltage

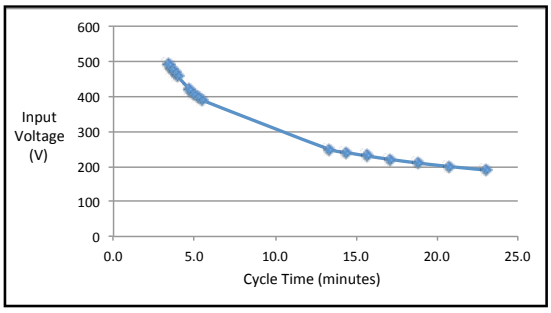
Let's consider a scenario of varying voltage. A large bakery has a production line with a torn belt. Thousands of dollars are being lost to downtime, with unpackaged product that will have to be disposed of because of food safety concerns. The maintenance crew calls the belt fabrication shop to order a replacement belt and the belt shop technician immediately begins prepping the belting to be spliced using 480V power at the shop. The splice is completed in approximately 13 minutes. Taking the spliced belt with him, the technician then travels to the bakery to replace the torn belt. Just to be cautious, he brings a portable splice press in case an issue arises.

Upon arrival at the bakery, the splice crew discovers that they were provided with the incorrect belt length dimensions. Luckily, they brought the portable press. They prep the belt and ensure the plant manager that the line will be up and running in about 13 minutes.

Thirteen minutes passed and the splice isn't quite complete yet. Same recipe. Same belt. Why was the splice time longer this time? The splice crew is perplexed. What happened?

The power source at the bakery is listed for 230V, so the splice time has increased. While the splice was completed and the bakery personnel are happy to be up and running again, the splice crew is perplexed that the variance of voltage increased the splice time.

Why voltages vary



In this instance, the likely culprit is the difference between the 480V and 230V power source, but there are actually a number of factors that should be considered. Here are a few things to think about when voltage variances could be a factor in the length of time to complete a splice:

What voltage is your power source? Like the example above, the splice crew should have accounted for the difference in supplied power at the operation. 480V supplies more power than the 230V. In addition, don't forget to overlook the fact that three phase electricity supplies more power than single phase. Therefore, a press operating on a three phase 230V will splice quicker than a press with single phase 230V.

Is an extension cord in use? Extension cords and long fixed wire runs to outlets can produce voltage variances. If something resists the flow of electricity, the voltage will drop. As the distance increases, voltage drop increases as well. Using the shortest extension cord possible can help decrease these voltage drops and reduce cycle time.

What time of day is it? The demands for power during the middle of the day can cause voltage drops. It's a simple case of supply versus demand. More people use power during the middle of the day than at other times of the day. For example, more power would be available at midnight, compared to peak times.

What time of the year is it? More power is used during the summer months as the population tries to cool their homes and businesses. So lesser voltage is not as much of an issue in the winter months.

How it affects your splice press

It's important to note that voltage variances really only affect the time it takes for the press to warm up. Dwell time and cooling time are not affected by a lack of supplied power. But keep in mind that simply affecting the warm up can increase your time spent splicing a belt.

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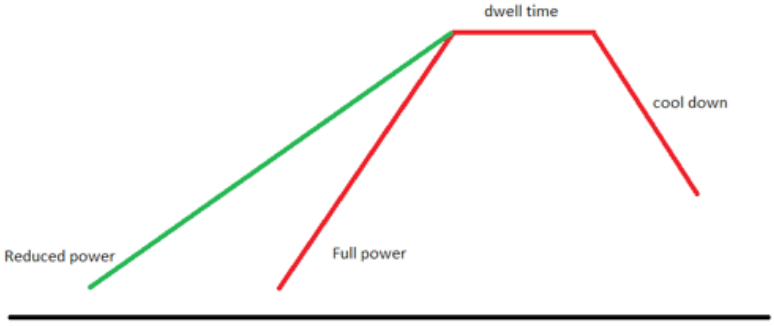
Solutions from Flexco

Novitool® Aero® Splice Press

The Aero® Press is ideal for splicing lightweight, thermoplastic belting. With cycle times as short as 8 minutes, the Aero allows your belt to be up and running fast, helping you minimize downtime and maximize productivity.

The Aero Press can also accommodate multiple voltages, automatically adjusting to allow for a wider range of voltages on the press based on the power cord selected.
Refer to the chart below.

	Aero® Voltage Compatibility					
VOLTAGE	625	925	1225	1525	1835	2135
110V 1PH	X	X	X			
230V 1PH	X	X	X	X	X	X
230V 3PH	X	X	X	X	X	X
400V+N3PH	X	X	X	X	X	X
400V 3PH				X	X	X
460V 3PH				X	X	X



Depending on power used, the press might operate in 'full power' mode, which will have a quicker warm up time, or in the 'reduced power' mode. 'Reduced power' mode will take slightly longer to reach the desired dwell temperature. Actual dwell time and cool down will take the same amount of time in either power mode.

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