12 Potential Causes of Downtime Related to Conveyor Belting

By their very nature, all conveyor belts have a finite life, including metal belts. Conveyor belts can be compared to a tire on an automobile. A tire has X number of revolutions on the road surface before its life is over, and a conveyor belt will travel around the conveyor circuit X number of times before its life is over. While its difficult to predict exact belt life, the main types of failure are known as Yield, wear, and fatigue failure. Every conveyor belt will experience one or a combination of these failure modes. There is no way to prevent a conveyor belt from failing once its average life cycle is "used-up". However, it is a fact that most conveyor belts do not wear out, or "use-up" their life. Most belts, if they actually do fail during use in a production environment, fail because of factors not related to strength, belt life, or robustness of the belt. They fail, usually for one or more of the reasons outlined below. These failures result in critical downtime… which equates to lost opportunity, lost production, and lost profits. We have listed 12 of the most common issues that have been found to be the culprit in conveyor and / or belting breakdown situations. They are listed in reverse order with number 12 being the least common, and number 1 being the most common.

12. **Installing the belt "backwards"** – the single or double loop edges on the belt should curve back and away from the direction of belt travel. If the belt is installed backwards, the loops can catch (for example on clothing) and cause accidents.

11. **Belt installed and run "upside down"** – There is a smooth ("top") side to Flat-Flex belts and an "underside" where the Z-bends form a distinct "ridge". The smooth side should always be "up" for the belt to run properly.

10. **Using the wrong mesh belt for the current application** – Products and processes change over the years. The conveyor and belt that were designed for a specific product and process several years ago may no longer be appropriate or heavy duty enough for the demands of the current application. The impact of product loading and belt speed on belt life need to be re-evaluated on an on-going basis.

9. **Contact between the Z-bends and wear strips** – If the belt joints on the underside of the belt run over any portion of the wear strips, this will produce wear and fatigue failure.

8. **Drive sprockets out of alignment** – The drive sprocket teeth must be perfectly aligned so that they all pull together smoothly to avoid "stress overload" on individual wire strands. (Using a "Keyed" drive shaft eliminates the need to manually align the sprocket teeth.)

7. **Installing the wrong drive sprockets** – Substituting other commercially available spur gears and sprockets will cause belt climbing and snapping. Only Flat-Flex sprockets purchased from Wire Belt Company are specifically designed to fit and pull the belt properly.

6. **Transfer or Reverse Bend radii too small** – This causes unnecessary stresses in the Z-bends.

5. **Worn out or damaged drive components** – Worn drive sprockets, idler sprockets, or blanks, can cause a belt to skip, drift side to side, or slip on a conveyor circuit. All of these conditions will cause either premature wear, or induce work hardening in the individual wire strands leading to broken wires and possible downtime.

4. **Improper clearance between belt joints ("Z-bends") and drive sprockets, blanks and/or grooved end rollers** – The Z-bends should never make contact with any conveyor component. A minimum 3/16" to 1/4" clearance is needed. There also needs to be sufficient clearance between the Z-bends on the underside of the belt and the bottom of the grooves in the transfer rollers.

3. **Too much tension on the belt** – Flat-Flex is a low-tension system. You only need to use enough tension to engage the drive sprockets correctly. (Too much tension literally pulls the wire apart, causing belt failure.)

2. **Accidents to the conveyor machinery and belt** – Accidents can and should be minimized, through establishment of standardized maintenance checklists and proper training of maintenance personnel.

1. **Inadequately, and/or improperly completed splicing** – Getting the splice right is not only difficult but time consuming. Many splices are made in haste; often they're put together "on-the-fly" immediately following a breakdown. The unfortunate result is that in nearly 90% of breakage during production, the break occurs at the splice.

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