INSIGHTS™
Belt Conveyor Maintenance
TECHNICAL SOLUTIONS FOR BELT CONVEYOR PRODUCTIVITY

Addressing Challenges Before the Load Point

When a load point is not set up properly, poor performance can lead to spillage and even equipment damage. But spillage and equipment damage at the load point isn't inevitable. Evaluating and optimizing the belt conveyor at load points can do wonders for a belt conveyor system and its productivity.

When evaluating the load point, it is wise to start by looking at the areas preceding the load point. For example, one of the primary causes of load-point spillage is actually a result of poor belt tracking prior to loading.

Mistracking and spillage

Mistracking can be a costly and sometimes dangerous problem. If caught early and fixed, a mistracked belt does little damage to the conveyor. However, if ignored, other types of damage can occur. A belt that is constantly hitting a structure damages both the structure and frays the edge of the belt. In extreme cases, the width of the belt is reduced by several inches, which reduces the amount of material it can carry. If a belt mistracks enough, it will spill material off of the topside onto the area around it, which could result in safety violations. MSHA (Mine Safety and Health Administration) also considers evidence of a belt rubbing on structure a fire hazard and can issue citations to underground coal mines under 30 CFR 75.1731(b).

Many times the load point is near the tail pulley. Since it is critical to center the belt before loading, the question arises of where to locate a belt training device. An easy solution is to install a return side belt trainer slightly upstream of the tail pulley. Usually, if the belt is centered as it goes around the tail pulley, it will be centered through the load zone.

An immediate result of a bad load point is spilled material landing on the return flight of the belt. This is a significant hazard to the life and well-being of your belt. While wing and wrap pulleys are used to allow space for fugitive material to slip by and prevent damage to both the belt and the pulley, they can still capture larger lumps of material and become damaged and uneven. In the case of crown and flat pulleys, there is no protection from spilled material which will damage the pulley, lagging, and belt. Installing a plow before the pulley will clear material from the belt and prevent damage from belt spillage. Both diagonal plows (all materials cleared to one side) and v-shaped plows (material cleared to both sides) are useful in this case.

Transition distance and premature wear

Even transition distance can have an impact on the load point. Transition distance is the length of belt used to transform from a flat shape exiting the pulley to the trough shape used to carry material. Often transition distances are compromised to save space, but this can cause many problems including premature belt wear, premature lagging wear, roller failure, and belt cupping due to carcass damage. Because of this, CEMA (Conveyor Equipment Manufacturers Association) recommends transition distances of up to four times the belt width, depending on the troughing angle, belt tension, and carcass construction. A conservative estimate for a 35-degree troughed fabric belt is to have at least 1.6 times its width as a transition distance.

The success of any part of the conveyor is dependent on several different areas of the system. It is for this reason that an evaluation of the entire system can only benefit an operation. A few simple changes to a system can increase efficiency and productivity and decrease the amount of time spent crunching numbers to cut costs, so it's also important to evaluate the load point and the area after the load point.

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Load point solutions from Flexco

Flexco has several solutions for issues occurring before the load point, including belt plows, belt positioners, belt trainers, and adjustable idler frames.

RDP1 Diagonal Plow

To keep lumps, rocks, and other fugitive materials out of your tail pulley or gravity take-up pulleys, the RDP1 Diagonal Plow is installed at a 45-degree angle across the belt to discharge fugitive material to a predetermined side.

V-Plow

An effective solution for protecting your tail pulley and lagging— as well as your mechanical splices and lagging — the V-Plow is uniquely designed to clean the inside (clean side) of your return belt. Plus, it outperforms conventional flat-bladed plows with our unique angled blade design that "spirals" debris off the belt.

Belt Positioner™

For belts that continuously mistrack to one side of the conveyor, the Belt Positioner™ is a quick-fix option. A simple solution that works on the return side belt, the Belt Positioner delivers consistent performance — without overcompensating and causing the belt to "wander" from side to side.

PT Smart™ Belt Trainer

Instantly reacting and compensating for belt misalignment, the PT Smart ensures the belt stays away from the structure and the material stays on the belt. The PT Smart is an affordable solution for even the most stubborn tracking problems on medium-tension belts.

PT Max™ Belt Trainer

The PT Max™ employs a unique "pivot and tilt" action that increases tension on the side of the belt that is mistracking, while reducing tension on the opposite side. This causes the belt to quickly return to center — much faster and more effectively than with pivot action alone.

Adjustable Idler Frame

Featuring CoreTech™ standard or impact idlers, adjustable idler frames are the quick solution for transitions or tight spaces between impact beds. The fold-flat design allows for quick installation, while the trough angle is adjustable in 5-degree increments from 10-45 degrees to ensure complete belt support in the transition area or any application.

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