

Maximize Belt Conveyor Efficiency: Benefits of Regular Inspection, Adjustment, and Replacement of Conveyor Belt Cleaner Blades

By Rick Dougherty

Introduction

Belt conveyor systems are the unsung heroes of modern industry, tirelessly moving bulk solid materials from one point to another, often around the clock. These systems rely on their conveyor belts to function smoothly and efficiently. However, what often goes unnoticed is the critical role of conveyor belt cleaners, also known as belt scrapers, in maintaining the integrity and performance of these conveyors. In this comprehensive guide, we will explore the vital importance and numerous benefits of regularly inspecting and replacing the conveyor belt cleaner's blades.

Understanding these key maintenance practices is essential for ensuring the longevity, safety, and efficiency of belt conveyor systems in the agriculture, mining, construction, and manufacturing industries where they are used.



The Role Of Conveyor Belt Cleaner Blades

Before delving into the importance of inspection and replacement, it's crucial to understand the role these belt cleaner blades play in the conveyor system. Conveyor belt cleaner blades/scrapper blades are components specifically designed to remove sticky residue and debris, called carryback, from a conveyor belt at the conveyor's head pulley. Their primary functions are as follows:

1. Material Removal: Conveyor belt cleaner blades not only clean the belt of conveyed material, but also effectively remove material buildup, such as dust, dirt, and spillage, from the belt's surface. This helps prevent material carryback, which can accumulate and lead to mistracking, increased maintenance, decreased belt lifespan, and loss of processed material.

2. Preventing Contamination: In industries where product purity and cleanliness are paramount, such as food and pharmaceuticals, belt cleaner blades are crucial for preventing cross-contamination. They ensure that the belt remains free from contaminants that could compromise the product quality.

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3. Enhancing Safety: Accumulated debris on a conveyor belt can be hazardous. It can create difficult-to-manuever walkways, contribute to equipment malfunctions, endanger workers, and cause system shutdowns. Belt cleaner blades help maintain a safe working environment.

4. Optimizing Efficiency: By maintaining a clean and smooth belt surface, cleaner blades contribute to the overall efficiency of the conveyor system. Reduced material carryback minimizes wear and tear on the belt, reducing operational costs and maintenance downtime.

Importance Of Regular Belt Cleaner Blade Inspection

Regular inspection is the cornerstone of effective conveyor maintenance. It allows you to identify potential issues before they become major problems, helping to prevent costly downtime and maintain operational efficiency. Here's why inspecting conveyor belt cleaner blades is so crucial:

- **Early Detection of Wear and Damage:** Over time, conveyor belt cleaner blades can wear down or become damaged. During routine inspections, maintenance personnel can spot signs of wear, such as uneven wear, sharp edges, etc, and address them promptly. This prevents the need for emergency maintenance, which can disrupt operations.
- **Optimizing Blade Positioning:** Proper scraper blade positioning and tensioning are essential for effective belt cleaning. Regular inspections ensure that the blades are correctly aligned with the conveyor belt, optimizing their performance. Misaligned belt cleaner blades can lead to inefficient cleaning and belt damage.
- **Preventing Spillage and Mistracking:** If belt cleaner blades are not functioning correctly, material carryback will occur. This leads to spillage and mistracking of the belt. Inspections help prevent these issues, maintaining a smooth belt conveyor flow.
- **Safety and Compliance:** A clean and well-maintained belt conveyor system is safer for workers. Regular inspections help ensure compliance with safety regulations and standards, reducing the risk of accidents, fines, violations, and associated legal issues.
- **Cost Savings:** Early detection and maintenance of belt cleaner blades can extend the lifespan of the conveyor belt itself. This means lower replacement costs and reduced downtime, resulting in significant long-term savings.

NOTE: An ROI spreadsheet which can quantify actual savings at your plant is available upon request.

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Benefits Of Timely Belt Cleaner Blade Replacement

While regular inspection is crucial, timely replacement of worn or damaged conveyor belt cleaner blades is equally important. Here are the benefits of adhering to a proactive blade replacement schedule:

- **Consistent Cleaning Performance:** As belt cleaner blades wear down, their cleaning efficiency diminishes. Timely replacement ensures that the conveyor belt remains consistently clean, reducing the risk of material carryback and related issues.
- **Extended Belt Lifespan:** Belt cleaner blades play a pivotal role in preventing abrasive materials from damaging the belt. By replacing worn blades, you protect the belt from excessive wear and tear, extending its lifespan and reducing the need for costly replacements.
- **Reduced Maintenance Costs:** Conveyor systems with well-maintained belt cleaner blades require less overall maintenance. This leads to significant cost savings by reducing the need for belt repairs, idler replacements, and other related expenses.
- **Enhanced Product Quality:** In industries with strict quality standards, such as food processing, pharmaceuticals, space, and other mixed-ingredient processes, timely blade replacement ensures that the conveyor belt remains uncontaminated. This safeguards product quality and integrity.
- **Increased Operational Efficiency:** A conveyor system with efficient belt cleaner blades operates more smoothly and consistently. This leads to enhanced production output and efficiency, which is crucial for meeting deadlines and production targets.

Best Practices For Belt Cleaner Blade Inspection And Replacement

To reap the full benefits of regular inspection and replacement of conveyor belt cleaner blades, follow these best practices:

- **Establish a Maintenance Schedule:** Create a routine maintenance schedule that includes regular inspection, adjustment, and replacement intervals based on the specific needs of your conveyor system.
- **Train Maintenance Personnel:** Ensure that your maintenance team is well-trained in the inspection and replacement of belt cleaner blades. They should be familiar with proper blade alignment, positioning, and tensioning.
- **Use High-Quality Blades:** Invest in high-quality replacement belt cleaner blades that are designed for the specific demands of your industry. Inferior blades will wear out quickly, not provide effective cleaning, and therefore increase your maintenance costs and downtime.

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- **Keep Records:** Maintain detailed records of inspections and replacements. This historical data can help identify trends and patterns in blade wear, allowing for more informed decisions.
- **Monitor Performance:** Implement a monitoring system to keep an eye on the belt cleaner performance on your conveyor systems. This can include sensors or visual inspections to ensure that the blades are functioning correctly.
- **Collaborate with Suppliers:** Work closely with your conveyor equipment suppliers, like AIRMATIC. They can provide guidance on the best practices for inspection and replacement and offer recommendations on suitable blade types.
- **Safety First:** Always prioritize safety during maintenance and replacement procedures. Ensure that the conveyor system is shut down, locked out, and tagged out when necessary to protect workers.

Conclusion

Conveyor belt cleaner blades are unsung heroes of conveyor systems, quietly working to maintain efficiency, safety, and product quality. Regular inspection and timely replacement of these essential components are key to the smooth operation of conveyor systems in various industries.

By understanding the critical role of belt cleaner blades and the benefits of proactive maintenance, businesses can save costs, reduce downtime, and maintain a safer and more efficient working environment. Embracing best practices for inspection and replacement is a wise investment that pays off in the long run, ensuring the longevity and reliability of conveyor systems in the ever-evolving landscape of industry.

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Thanks for reading our post. If you'd like to learn more about optimizing belt conveyor performance from one of our experts, contact us at **+215-333-5600** or at **infocenter@airmatic.com**.