

Ground Breaking

INNOVATIVE SOLUTIONS FOR THE EFFICIENT CONTROL OF DUST AND SPILLS AND ELIMINATION OF MISALIGNMENT, ABRASION AND CONVEYOR BELT DAMAGE

Companies around the world are continually looking for more efficient, dependable systems to alleviate problems associated with dust generation and belt misalignment in bulk handling. Common difficulties include dust, spills and contamination at the transfer points of conveyor systems. Misalignment, abrasion and subsequent belt damage are other problems industry faces.

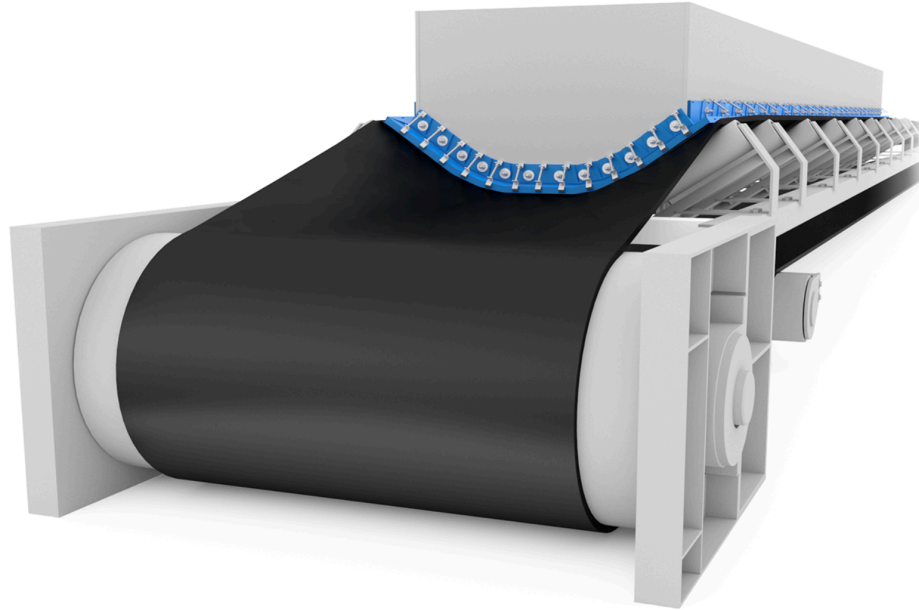
An added advantage is for industry to be able to cope efficiently with the challenges of moist and sticky materials.

BLT WORLD works closely with the ScrapeTec team, which has developed advanced solutions for conveyor systems used in diverse sectors, including the handling of difficult bulk materials, like cement, fertilizer, coal and minerals.

ScrapeTec's AirScrape and TailScrape systems prevent dust formation, reduce material spill, enable thorough belt-cleaning and minimise the risk of explosion at critical sections along the conveyor route and at transfer points. The PrimeTracker belt tracker eliminates other problems associated with conveyor belt systems, including misalignment, abrasion and belt damage.

“Conventional dust control measures – which include side seals, covers, shrouds or enclosures around a dust source – do help to suppress dust generation and dispersal in the short-term, but many of these measures quickly wear-out as a result of friction and can damage the belt of the conveyor during extended periods of use,” explains Ken Mouritzen, managing director, BLT WORLD.

“We have discovered substantial benefits when combining the ScrapeTec AirScrape, TailScrape and PrimeTracker belt tracker on a conveyor system. The PrimeTracker ensures the belt is constantly in the correct position during operation, thus eliminating problems with belt mistracking, while the AirScrape and TailScrape efficiently control dust, prevent material spill and minimise explosion risks.



“Correct installation of this highly-efficient equipment ensures optimum performance, reduced risk of explosion, low maintenance and extended service life of the conveyor system.”

A dependable conveyor system for moist and sticky materials, like manure and compost

A highly-effective system was recently installed on a conveyor system at a fertilizer plant – comprising the AirScrape, TailScrape and PrimeTracker belt tracker – and feedback from the customer is positive. According to the plant manager, since the installation of this system over a year ago, dust and material spillage problems are significantly reduced. The plant manager also notes there is no longer any reason for extensive cleaning operations and maintenance work on the conveyor belt is minimal.

Prior to this installation at the plant, the team had to spend hours each day, cleaning the belt periphery and all transfer points, from unplanned material spills and the remnants of sticky fertilizers. The plant manager had previously tried various methods to cope with annoying material spills in the plant’s moist and sticky environment, without success. This efficient conveyor system enables the team to now spend more time on productive work at the plant.

Studies in other projects show, that even after five years after installation and with continuous use in harsh conditions, these systems hardly show any signs of wear. Operational costs are also reduced because there is no need for spillage collection, regular maintenance, or replacement parts.

AirScrape – efficient dust control

The contact-free AirScrape conveyor belt skirting system is an effective side seal that lies over the conveyor belt, without contact and creates negative pressure on the belt, due to its specially-designed lamella structure.

Because this system hovers freely above the conveyor belt, skirt friction and belt damage are eliminated and service life of every component of the conveyor is extended.

The AirScrape system encompasses inward facing, hardened-steel diagonal blades and operates according to a new principle where it hovers 1-2 mm, on the left and right side above the conveyor belt.

These blades deflect larger particles inwards, while using the air-flow of the conveyor belt and conveyed material to create an inward suction, forcing any dust and fine particles back into the product flow. Through these diagonally fitted plates and the speed of the running belt, air is drawn from the outside inwards. As a result, neither the dust nor material can escape.

Conventional skirting is pressed against a conveyor belt to keep dust and material in the middle of the belt, but after a period, wear of the skirting and belt can be so severe, that material and dust escapes. Material spillage at transfer points needs to be removed and regular maintenance of belt skirting and transfer points is necessary.

With the AirScrape dust-free and contact-free, side-sealing system for belt conveyors, there is no skirt contact and therefore no belt wear or damage. Motor power requirements are reduced as there is no belt-skirt friction and because there is continuous skirting with no gaps, product loss is minimal.

This system is fitted using spacers, floating the blades just above the belt and is attached to the outside of the chute by utilising existing skirt clamps or a simple bolt and nut system. It is longitudinally adjustable to follow the contours of conveyor belt rollers and the belt trough angle.

TailScrape – the transfer tail skirting system

Like AirScrape, the TailScrape system works according to the Venturi concept, to prevent dust generation and material spills. The intelligent blade structure on the underside of the system ensures that negative pressure is created in the conveying area, preventing the escape of materials. Dust is kept in the material flow by air intake.

The TailScrape system, which enhances performance of the AirScrape, is available in small, medium and large designs, suitable for all belt widths, to match the AirScrape variants.

TailScrape is mounted precisely to the existing AirScrape system, so that it seals the transfer to the bend, averting dust generation and material spillage, also reducing the risk of explosion.

The TailScrape system operates without contact to the conveyor belt, which means there is no belt or skirting wear and because the load on the drive system is reduced, there is no belt friction.

This system, which can be operated permanently, reduces maintenance requirements and replacement costs, also extending service life of components.

Benefits of installing belt tracker

For optimum performance of a conveyor system, it is critical that the belt always runs straight on the conveyor, without sideways movement.

BLT WORLD's new Scrapetec PrimeTracker belt tracker has been designed to automatically guide a conveyor belt back into the correct straight-line position, to prevent costly downtime and component replacement.

An advantage of this device is that it operates in the idling position at all times, unless there is sideways movement of the belt. This system corrects misalignment immediately, by guiding the belt back into the correct position, with no damage or abrasion to the belt or tracker.

This is unlike conventional belt trackers that slide over the belt surface causing possible abrasion and belt damage – rather than adopting free rotation. Conventional belt trackers, with tapered edges, never idle and are always in a braking mode.

What's also notable, is the cylindrical shape and pivot bush that allow this belt tracker to swing and tilt during operation and to always be in full contact with the belt. Added to this, the ScrapeTec PrimeTracker has the same peripheral speed over the entire surface of the belt, where traditional crowned rollers have different speeds at the centre and edges of the system.

Other advantages include easy installation, low maintenance requirements and protection of belt edges and structure of the conveyor belt. A strong corrugated EPDM rubber hose protects this system from dust and sand, while the rubber pivot offers soft suspension of the tracker shaft, ensuring extended service life of the system. This system can be installed in front of every return pulley, above and below the belt.

The BLT WORLD team, in close co-operation with ScrapeTec experts, provides an assessment and solutions service to customers in diverse sectors, for planning and implementing projects. A technical advisory and support service enhances performance of every ScrapeTec system.