

SAFETY

CONVEYING & MATERIAL HANDLING

CONVEYOR TRANSFER POINT DESIGN CONSIDERATIONS

Advice for cleaner, safer and more productive conveying

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As tons of material per hour are quickly dropped with great force through receiving chutes onto a receiving conveyor, fugitive cargo often piles up around the frame and dust migrates throughout the area.

The material collects on idlers, pulleys and floors, affecting air quality.

Workers are tasked with continuously cleaning up material before it encapsulates the belt, potentially exposing them to a hazardous work area around a moving conveyor where even incidental contact can result in serious injury in a split second.

Considering most conveyor injuries occur through routine maintenance or cleanup, controlling fugitive material is becoming one of the primary elements in a well-organized effort to reduce hazards and prevent injuries.

“Conveyor operators need only take a broad look at the expense that fugitive material has on a system to realize the full cost that accompanies inefficient transfer point designs,” says Jerad Heitzler, product specialist at Martin Engineering. “Problems such as improper belt support, badly sealed chutes, damaged idlers and uneven cargo distribution can all result in spillage and belt mistracking.”

In a properly engineered transfer point, each component – from the chute design to the cradles and dust seals – is employed to maximize its specific function and contain dust and fines, while at the same time offering workers easy access for maintenance.



A well-designed transfer point controls the maximum load at the highest achievable volume.

TRANSFER POINTS

Containment is key to avoiding spillage and dust, and there are a number of components designed for this purpose.

Although shaped transfer chutes and rock boxes direct the material flow to mitigate the concussion of material on the belt, most high-volume operations need one or more impact cradles to absorb the force of the cargo stream.

Heavy-duty impact cradles can be equipped with rubber or urethane impact bars with a top layer of slick UHMW plastic to minimize belt friction. Able to withstand impact forces as high as 17,000 lbf and drop heights of up to 50

ft., support beams in the center of the cradle are set slightly below the receiving belt's line of travel.

In this way, the belt avoids sustained friction when running empty. And yet it can absorb hard impacts during loading while still retaining a tight belt seal.

Within the settling zone – located after the impact cradle in the conveyor chute box – slider cradles can then create a troughed belt to center the cargo and reduce disruption quickly, aiding in dust settlement.

Slider cradles, located down the length of the skirted area, have several different functions. One is to create a trough angle

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