

Tru-Trac's EXHD dynamic impact idler bed

Tru-Trac COO, Shaun Blumberg, unpacks the impact control capabilities of Tru-Trac's innovative EXHD dynamic impact idler bed, which offers a durable solution to protect the loading zones of conveyor belts where falling materials can cause severe damage.



Left: Tru-Trac's EXHD dynamic impact idler bed provides a durable solution to protect belts and improve system reliability in demanding conditions. Right: The EXHD combines dynamically adjusting impact idlers with robust shock-absorbing springs to provide superior impact control.

Conveyor belts are crucial components in mining and heavy aggregate handling operations, where efficiency and reliability are paramount. However, these systems often encounter significant challenges, particularly in the loading zones where the impact of falling materials can cause severe belt damage. Tru-Trac's EXHD dynamic impact idler bed offers a robust solution designed to protect belts and enhance system reliability in the most demanding applications.

COO of Tru-Trac, Shaun Blumberg, says the challenge of managing impact control in loading zones is a significant one for all materials handling operations. "These transfer zones are the points where materials are introduced onto the belt from chutes, often from considerable heights ranging from two up to ten metres. The force of this impact can lead to various issues including belt damage, material spillage and belt misalignment. Insufficient support and impact control ultimately results in frequent maintenance needs, increased downtime and higher operational costs."

Traditional impact rollers, he continues, while commonly used due to their low cost, often provide inadequate shock absorption particularly in high-drop applications. Furthermore, poorly designed chutes and under-specified impact beds can worsen the problem.

It is a known fact that improperly engineered loading zones that fail to distribute material evenly or align with the belt's trajectory create uneven wear, and this significantly increases the likelihood of belt damage.

According to Blumberg, Tru-Trac's EXHD

represents a unique and significant advancement in addressing these issues. Specifically engineered for applications with drop heights between two and 10 m, this system is designed to absorb heavy aggregate impacts safely, preventing belt damage and extending the belt's life.

The EXHD idler bed combines dynamically adjusting impact idlers with robust shock-absorbing springs to provide superior impact control. The impact idlers in the Tru-Trac EXHD system oscillate to adjust dynamically to the load, significantly reducing the force transmitted to the belt. This movement allows the system to absorb and dissipate impact energy more effectively than static systems.

Heavy duty springs capable of handling loads up to 11.4 t enhance this absorption, working in tandem with the idlers to effectively manage high impact conditions. This advanced design ensures minimal stress on the belt, preventing damage and enhancing durability.

He says that Tru-Trac offers a range of impact control solutions tailored to specific application requirements, ensuring that conveyor systems are protected from various types of impact forces. The range includes standard impact beds, impact rollers and slider frames; all of which are engineered for easy installation and minimal maintenance.

Tru-Trac's capabilities also extend to addressing dust and spillage around the impact or loading zone. "Proper dust and spillage control are essential for maintaining a clean and efficient conveyor environment and our solutions help to minimise material loss and prevent the

accumulation of debris, which can lead to additional wear and operational inefficiencies," says Blumberg.

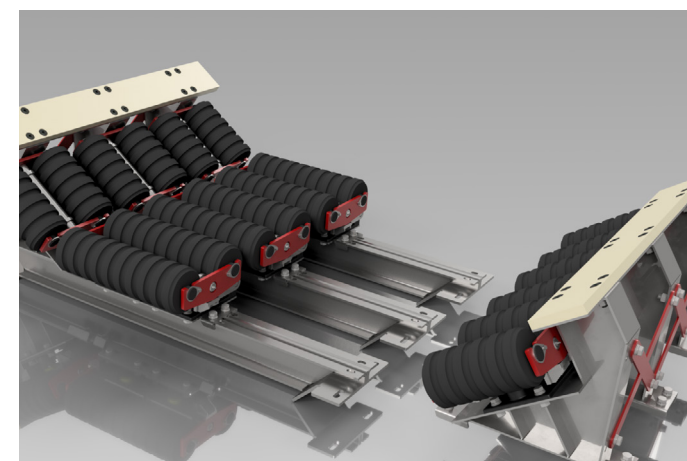
A case study from the DRC

A recent case study from a copper mine in the DRC highlights the effectiveness of the Tru-Trac EXHD dynamic impact idler bed. The mine faced extreme challenges with its conveyor system, where high impact loads in the loading zone frequently caused belt damage, leading to significant downtime and maintenance costs. The existing impact system, which used traditional rollers, proved inadequate for handling the high drop heights and abrasive materials.

"Our local team conducted a comprehensive site assessment, collecting the necessary data and analysing various factors such as material properties, drop heights, existing system configurations and operational challenges," Blumberg explains. "This detailed evaluation included observing the wear patterns on the existing conveyor belt, identifying the sources and magnitude of impact forces and assessing the overall condition of the loading zones."

"By gathering the necessary information first hand and gaining a thorough understanding of the specific conditions and requirements, our engineering team could offer a solution that would effectively address the unique challenges faced by the site and this saw the installation of our Tru-Trac EXHD's," he says.

In this application, the system's oscillating idlers and heavy duty springs work in tandem to absorb and disperse the severe impacts. The oscillating idlers dynamically adjust to the load,



Left: The impact idlers in the Tru-Trac EXHD system oscillate to adjust dynamically to the load, significantly reducing the force transmitted to the belt. Right: Tru-Trac's EXHD dynamic impact idler bed represents a significant advancement in conveyor belt protection.



allowing them to move with the material as it falls onto the belt. This dynamic adjustment significantly reduces the direct force transmitted to the belt, preventing sudden shocks that can cause damage. The heavy duty springs complement this action by providing robust shock absorption, further minimising stress on the belt.

"Together, these components ensure that the belt remains aligned, preventing issues such as misalignment, tearing and edge wear. By maintaining proper alignment and reducing impact related damage the system increases the

belt's longevity and reliability and has ultimately led to reduced maintenance costs and increased uptime at this customer," says Blumberg.

It is apparent that the broader impact of poorly designed loading zones cannot be underestimated. Inadequate impact protection can lead to increased spillage, belt misalignment and structural damage to the conveyor system. Misalignment causes the belt to drift leading to additional wear on the edges and other components which, in turn, increases maintenance requirements and potential operational downtime. Chutes that are not properly aligned with

the conveyor can misdirect materials, creating irregular impact points and causing excessive localised stress on the belt. This can result in belt failure and significant operational disruptions.

"Our EXHD dynamic impact idler bed represents a significant advancement in conveyor belt protection, effectively addressing the complex challenges of impact control in loading zones and we believe that investing in high quality impact beds and ensuring proper chute design is crucial for maintaining efficient and reliable conveyor operations," Blumberg concludes.

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