

Protecting The Conveyor From Itself

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It goes without saying that the number one priority should always be personal safety when working on or near a conveyor system. Regulations dictate that people are protected from start-up (pre-start alarms), there is a readily accessible means to stop the conveyor in an emergency (pull cord switch), and that a conveyor cannot be inadvertently started during maintenance (lockout/tag out). However, for many reasons, often little is done to protect the conveyor from itself.

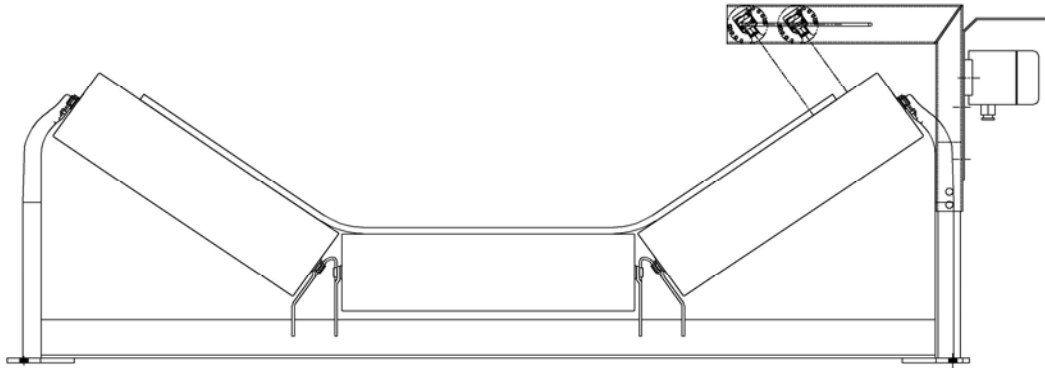
Misalignment occurs on all conveyors. Although a certain amount can be corrected through proper maintenance and mechanical training devices, there will always be outside forces which will cause the belt to run outside the acceptable operational limits. The variable is the amount of misalignment that can be allowed before action must be taken. Due to belt tension and structural limits, misalignment detectors should be installed at both the head and tail of all conveyors.



Structure on the return side of the conveyor is often the first area damaged.

Additional units should be considered at any vertical or horizontal curves or in any areas where misalignment is known to exist. Due to variances in conveyor design, the area(s) most affected by the wandering belt should be identified (take-ups, head chutes, etc.) and detectors should be installed in those areas as to minimize belt damage.

With the advance in technology, non-contact misalignment detectors are now available which allow for quick installation, reliable service, and no maintenance. A single unit is able to detect misalignment in either direction. Once misalignment has occurred, the unit will provide an alarm output to warn of the condition. At any time the alarm is activated, a field adjustable timer starts and an output is activated (alarm). If the condition corrects prior to the timer expiring, the alarm is cleared. However, if the condition continues beyond the predetermined time frame, a second contact (trip) is activated to stop the conveyor.



Non contact misalignment detector

In the selection of any field device, it is of paramount consideration that the solution is not worse than the problem. Any device installed in a mining environment needs to be suitable for such an environment. Devices which become inoperative due to material build-up or must be constantly adjusted will soon be ignored, wired around, or removed completely, leaving the belt unprotected. Miles of belt are damaged each year due to misalignment on conveyors that are equipped with inoperative or unreliable detectors. Reliable detection is the key to long belt life.