



Is Your Belt Slippage Protection Working?

Category : [Conveyors](#)

Mine Type: [All Miners](#)

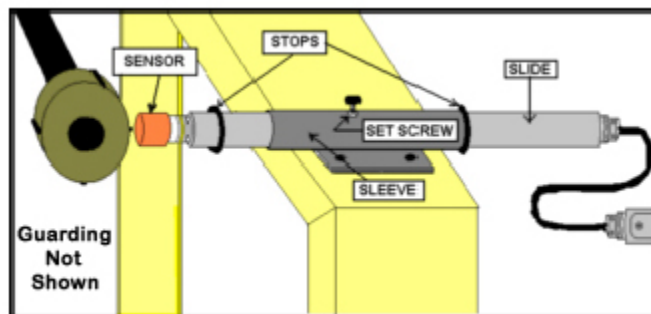
In recent years several conveyor belt fires have been caused by belt slippage. To prevent conveyor belt fires, a belt slippage detection system should be provided to stop the conveyor drive automatically when belt slippage occurs.

Most conveyor slip switches are designed to operate on one of three principles; magnetism, centrifugal force, or photo-electricity. Today, a common choice for underground use is a system utilizing a slip switch proximity sensor. These units work by detecting interruptions of a magnetic field by targets installed on a rotating shaft or roller. Slippage is detected by a change in the speed of rotation of the shaft or roller. In addition, a new technology that uses a computer generated signal to monitor motor current and voltage to detect a slow down in the belt is available.



Regardless of the type of detection system used, the unit should be tested frequently. It is highly recommended that systems be checked at least once per shift. But how do you check the slip detection system to make sure it's working properly-

- Some manufacturers of the magnetic-type units incorporate a test feature in the electronic circuitry to simulate loss of the sensor signal which de-energizes the conveyor drive motor. To eliminate problems associated with stopping a conveyor system during testing, units are available which test the speed switch circuitry without de-energizing the drive systems. These test units can detect jumpers in addition to detecting electrical fault problems in the conveyor control unit and the slip switch testing unit itself.



- Another way to check the operation of the system is to physically simulate a belt slippage condition - either by causing the rotation of the monitored roller to slow down or by interrupting the signal to the sensor. There are a number of ways that this could be done. A test idea that can be used on magnetic-sensor type units consists of mounting the sensor head on an extendable slide. Sliding the sensor away from the target interrupts the signal and simulates belt slippage. Slides can be fitted with stops to prevent damage to the sensor and a set screw to lock the sensor in place. The slide arrangement permits

personnel to perform testing in a location away from the immediate hazards of rotating equipment and pinch points. Slides can be made of plastic pipe inside a metal pipe sleeve securely mounted on the conveyor frame structure and should extend beyond guarding.

MSHA encourages frequent testing of belt slippage detection systems. However, when using test methods that simulate belt slippage, procedures must be carefully designed to eliminate any possibilities of subjecting personnel to moving equipment and pinch point hazards.

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Remember – Safety is a Value that you can LIVE with!