Placement of Pulley Protection

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Just as it is important to have a roller above a secondary belt cleaner that provides downward pressure to keep the cleaner from pushing the belt up, it is important to have one or two pressure rollers below the pulley-protection plow installation. In this case, the mission is to prevent the plow from changing the belt line by pushing the belt down so that material can pass underneath the blade. Depending on the space available, this can be a single idler roller placed directly under the plow or a pair of return idlers, one installed before the plow and one after.

Diagonal plows are installed across the belt at an angle of 45 degrees to the direction of travel.

Like any other conveyor component that will be in contact with the belt, the installation of a pulley-protection device will increase the friction against the moving belt. Consequently, this drag will increase the conveyor's drive power requirements.

In the sixth edition of Belt Conveyors for Bulk Materials, the Conveyor Equipment Manufacturers Association (CEMA) offers a recommended setting of 2 pounds-force per inch of belt width as the normal force for plow-to-belt pressure. (The metric equivalent is 0.35 newtons per millimeter of belt width.) this pressure can be converted into power consumption using formulas.

Selection Considerations for Pulley Protection

When specifying a pulley-protection device, there are a number of factors that should be considered.

A plow should:

A. Provide firm but flexible pressure

Firm but flexible pressure will allow the device to clean the belt surface. The intent of the device is to remove material effectively and efficiently yet adjust automatically to accommodate for the wear of its blade and fluctuations in belt movement, speed, and path.

B. Be securely mounted

The plow must be firmly mounted in order to minimize the risk of it breaking away from its installation to endanger the conveyor components it was installed to protect. The installation should include a safety cable to protect the conveyor system should the plow installation fail.

C. Be designed for ease of installation

The plow should be easy to install to minimize downtime of the system during the installation procedure. For example, the device should fit within the conveyor structure without requiring extensive modifications to the device or the structure.

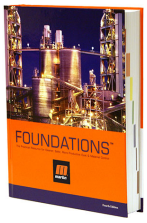
D. Be designed with a durable, easily replaceable blade

In order to provide a long service-life and allow fast maintenance, the blade should be fabricated of a material suited to withstand application conditions, and it should be attached so it can be easily removed and replaced when worn.

E. Be readily accessible

The plow should be installed in an area where it can be observed during operation and easily maintained.

More on placement of pulley protection can be found in Chapter 15 of FOUNDATIONS™ Fourth Edition by Martin Engineering.



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