Belt Support with Idlers

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There are many types, but they all share the same responsibilities: to shape and support the belt and cargo, while minimizing the power needed to transport the materials.

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The Idler Family
Idlers are classified according to roll diameter, type of service, operating condition, belt load, and belt speed; they are rated on their load-carrying capacity based on calculated bearing life. CEMA uses a two-character code that expresses the idler classification and implied load rating, with a letter-based code followed by idler diameter in inches, resulting in classes from B4 to F8. Other regions may have different classification systems.

Regardless of the codes and classifications, the key is to make sure each conveyor is consistent throughout – that all idlers on a given conveyor conform to the same standards and, ideally, are supplied by the same manufacturer.

There are a wide variety of general categories of idlers, depending on their intended application.

Carrying Idlers

Carrying idlers provide support for the belt while it carries the material. They are available in flat or troughed designs. The flat design usually consists of a single horizontal roll for use on flat belts, such as belt feeders.

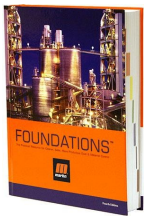
The troughed idler usually consists of three rolls – one horizontal roll in the center with inclined (or wing) rolls on either side. The angle of the inclined rollers from horizontal is called the trough angle. Typically, all three rolls are the same length, although there are sets that incorporate a longer center roll and shorter inclined rollers called “picking” idlers. This design supplies a larger flat area to carry material while allowing inspection or “picking” of the cargo.

Troughed idler sets are available as incline idlers – the centerlines of the three rolls are aligned – and offset idlers – the center roll has a centerline different from the wing rollers, usually with the belt passing over the center roller in advance of the wing rollers. Offsetting the idlers can reduce the overall height of the idler set and, accordingly, is popular in underground mining applications, where headroom is at a premium. Offset idlers eliminate the gap between the rollers, reducing the chance of a type of belt damage called junction-joint failure.

Return Idlers

Return idlers provide support for the belt on its way back to the loading zone after unloading the cargo. These idlers normally consist of a single horizontal roll hung from the underside of the conveyor stringers. V-return idlers, incorporating two smaller rolls, are sometimes installed to improve belt tracking.

More on belt support with idlers can be found in Chapter 10 of FOUNDATIONS™ Fourth Edition by Martin Engineering.



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