Mechanical Conveyor for Hot, Friable Material

Question

What kind of mechanical conveyor is best suited for transferring our hot, friable material after it discharges from a dryer?

Answer

There are several choices for transferring or conveying hot, friable material from a dryer. Friable materials will degrade / break up under pressure or in other words, be reduced to smaller pieces with little effort. Friability is a relative term, while some bulk materials break up very easily, others take significant pressure.

If your material is very friable and you want to avoid significant breakage, then you need a mechanical conveyor that keeps the material static while it is being conveyed. Bucket conveyors or pan conveyors keep the material contained during conveying, causing very little size reduction. Vibratory or horizontal-motion conveyors can move bulk materials forward using vibration or horizontal motion while minimizing breakage. Less friable materials can be conveyed using drag conveyors or even screw conveyors. Drag conveyors keep the material static between the drag conveyor paddles while screw conveyors can be operated at very slow speeds to minimize breakage. Additionally, a screw conveyor can be provided with an external jacket for cooling the bulk material during conveying.

Some mechanical conveyors have limitations while others are well suited for addressing high temperature applications. For example, drag conveyors typically use UHMW polyethylene plastic for the flights which is only rated to about 220-degrees F. Therefore, a drag conveyor could be used for material temperatures up to about 200-degrees F. Conversely, vibratory, horizontal-motion, and screw conveyors can normally be used for extremely high temperature applications.

A multitude of manufacturers can help determine the right mechanical conveyor for your application. Your goal should be to find one that has a knowledgeable sales and engineering staff that can understand your application and recommend the correct solution.

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