



Designing an Unloading System Using Screw Feeders and Screw Conveyors

Question

I am designing a new system for unloading bulk materials from railcars and conveying it to a packaging line using screw feeders and screw conveyors. What is the difference between a screw feeder and a screw conveyor?

Answer

A screw feeder is designed to be flood loaded or 100-percent full at the inlet. Screw feeders are located under hoppers, bins or silos and are used to meter bulk products at a controlled rate. Screw feeders can be designed with variable speed drives to provide a wide range of feedrates for changing process requirements. Screw feeders can also be single or multiple-screw type and are an integral part of the hopper, bin or silo design to provide mass flow and to prevent bridging or rat-holing of the bulk products.

A screw conveyor is always control fed by another device such as a rotary airlock, screw feeder or screw conveyor. The trough loading is typically 15, 30 or 45-percent full depending on the product being conveyed. A screw conveyor is used to transfer bulk products from one location to another. The feedrate or capacity of a screw conveyor depends on the capacity of the device feeding the screw conveyor. If the upstream equipment is designed for surge loads, then the screw conveyor must be designed for the same surge loading.

The screw feeders will be located under the railcars for your application. The bulk material will flood into the screw feeders and then be metered to the downstream screw conveyors. The screw conveyors will convey the bulk material at a controlled rate to the packaging line.



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