



Unit III - Topic 3

Chain Conveyor

A chain conveyor is a type of mechanical conveyor system used to move materials or products within a manufacturing or industrial setting. It consists of a continuous chain that runs along a series of wheels or sprockets, guiding and propelling the items being transported. The chain typically has attachments or buckets that can carry the load.

Here are some key features and components of a chain conveyor:

1. **Chain:** The chain is the primary component that carries the load and moves it along the conveyor's path. It is made up of interconnected links, and its design varies based on the type of material being conveyed and the conveyor's application.
2. **Attachments:** Attachments are fixtures or fittings on the chain that help to carry and guide the materials being transported. They can take various forms, such as buckets, flights, or pallets, depending on the specific application.
3. **Sprockets:** Sprockets are toothed wheels that engage with the links of the chain, providing the necessary drive and tension to move the chain and the attached materials along the conveyor.
4. **Supporting Structure:** The conveyor is typically mounted on a sturdy framework, providing support and stability for the chain and ensuring proper alignment and operation.
5. **Drive Mechanism:** The chain conveyor is powered by a motor or an engine connected to the drive sprocket, imparting motion to the chain and propelling the materials along the conveyor's path.



6. **Idlers or Rollers:** These components help support and guide the chain, reducing friction and allowing for smooth movement of the chain as it travels along the conveyor.

Chain conveyors are commonly used in various industries, including manufacturing, agriculture, mining, automotive, and packaging. They are ideal for transporting bulk materials, granular products, and items with irregular shapes that may not be suitable for other conveyor types. The versatility and durability of chain conveyors make them an efficient solution for material handling and transportation needs within industrial operations.



Bucket Elevator

A bucket elevator is a type of mechanical conveyor system used to vertically convey bulk materials. It consists of a series of buckets attached to a rotating chain or belt, allowing materials to be lifted from one level to another in a controlled and efficient manner. Bucket elevators are commonly used in industries such as agriculture, mining, manufacturing, and food processing.

Here are the key components and features of a bucket elevator:

1. **Buckets:** Buckets are the primary components of a bucket elevator, responsible for carrying and transporting the bulk materials. These buckets are typically attached to a chain or belt and come in various shapes and sizes to accommodate different types of materials.
2. **Belt or Chain:** The belt or chain serves as the driving mechanism that moves the buckets. The selection of belt or chain depends on the application and the characteristics of the material being conveyed.
3. **Pulleys or Sprockets:** Pulleys or sprockets are used to guide and drive the belt or chain. They are responsible for moving the buckets in a continuous loop, lifting the materials as they move along.
4. **Drive System:** The drive system, usually consisting of an electric motor and a gearbox, provides the necessary power to move the belt or chain and lift the buckets.
5. **Head Section:** The head section is where the material is initially fed into the elevator. It contains the drive system and the upper pulley or sprocket.
6. **Boot Section:** The boot section is located at the bottom of the elevator and typically houses the lower pulley or sprocket. It's responsible for collecting and discharging the material.



7. Casing: The casing encloses the bucket elevator and provides structural support. It helps in controlling dust and preventing spillage during material transportation.

8. Elevator Legs: Elevator legs are vertical or inclined structural components that house the belt or chain, buckets, and associated components. They provide support and alignment to ensure smooth operation.

Bucket elevators are used for efficiently conveying a wide range of bulk materials such as grains, seeds, aggregates, minerals, powders, pellets, and more. The vertical lifting capability of bucket elevators makes them an essential tool for industries that require the movement of materials between different levels within a facility. The design and specifications of bucket elevators can vary based on the specific requirements of the application and the type of material being handled.



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