5.2 PORTABLE MATERIAL BINS AND MATERIAL HANDLING CONVEYORS

In-Plant Portable Bins

Portable bins and bin dispensing systems are useful for in-plant transfer and storage of product in-process, and for holding semi-bulk ingredients where the quantity and frequency of change make bulk bags unsuitable. Using a partial bulk sack can be done, but it just isn't very practical or sanitary. Portable hoppers and containers are also useful for storing materials closed to atmosphere, or inerted by nitrogen or argon.

Construction

Applicon offers portable bins in steel, stainless, or aluminium construction, or tough translucent polymer with heavy duty steel frame. These are available with several styles of inlet and discharge gates to suit a wide range of stored materials. Portable bins with conical discharge valve, coupled with compact unloading stations provide high speed, high accuracy dispensing of difficult powders or granules.

MATERIAL HANDLING CONVEYORS:

Material handling is a field involving the transport, storage, and control of goods and products throughout the processes of manufacturing, distribution, consumption and disposal of all related materials. The focus of the material handling industry is on the methods, mechanical equipment, systems and related controls used to achieve necessary functions.

One might find the explanation above helpful in describing material handling to someone outside the industry. Though, one may also find a blank stare and questions following the explanation.

The use of conveyors in material handling has been around since the early 20th century and can be known as the back bone of material handling. With their long history, conveyors are easier known as a piece of equipment that moves

material from one place to another and are especially useful when applications call for the transportation of heavy or bulky material. Conveyor systems also allow quick and efficient transportation for a wide variety of materials at all shapes and sizes.

When a conveyor system begins in the concept phase, it helps to have a good understanding of what style conveyor is necessary for certain product handling applications. Here are a few items that should be considered prior to hitting the drawing board to make sure you are focusing your efforts on the correct conveyor.

- Product dimensions
- Product weight
- Product throughput
- Product variability
- Surrounding environment
- Power requirements

With the industry leaning more and more toward automatic processes, conveyor is needed to assist these processes, but it's critical to answer the considerations above before choosing which conveyor is right for you. Below is a listing of conveyor categories and sub categories with a brief description of a likely application.

- **Gravity Conveyor** – gravity, non-powered conveyor, is typically used in truck off loading, package sorting, and assembly or kitting areas. Gravity is the cheapest form of conveyor but lacks in product control.
- **Belt Conveyor** - is typically used in package handling, raw material handling, and small part handling. It is effectively used for elevation change or incline/decline applications. A more common application of belt conveyor you might not notice is in the check-out line at your local grocery

store.

- **Powered Roller Conveyor** -
    - **Live Roller Conveyor -** is typically used in general transport when product accumulation is not required. It is also used in package handling applications and is ideal for light- to medium-product loads.
    - **Minimum Pressure Conveyor -** is used in short sections of accumulation, general transport of product, and is ideal for medium to light loads such as package handling applications.
    - **Zero Pressure Conveyor -** is commonly found in distribution centres where there is a wide variety of product width and weight. Applications include buffering of product prior to sortation, packaging, kitting, or shipping areas. It is also ideal for picking areas and palletizing areas. This conveyor is used in high throughput systems.

Pallet Conveyor -

- **Drag Chain** - is typically used for handling extremely heavy loads, special pallet configurations, and extremely low- to high-temperature areas.
- **Roller** - Roller pallet conveyor is typically used for handling extremely heavy loads and is ideal for accumulation zones in pack out areas.
- **Overhead Conveyor** - is typically used in paint and finishing lines, trash removal, food packing, and assembly lines. These are some of the oldest conveyors still used in the industry today because they are very reliable and require little maintenance.
- **Table Top Chain** - is used in accumulation, package handling, filling, labelling, and wash-down applications.

- **Magnetic Slide Conveyor** - is used in metal stamping, chip removal, and small part transport application.