

End of Line packaging machines

With urbanization organized retail through, packaging now plays a critical role in the development of a brand. The emerging trends, which are changing the packaging scenario across Asia, include change in demographics, growing middle income group and rapid urbanization. Furthermore, factors like health and well-being, safety and sustainability, convenience and conspicuous consumption, on-the-go lifestyle, concerns about product safety and security, growing ethnic diversity and ageing society, are also contributing to the change.

To cater to such a vast range of demographics while keeping cost's low, packaging requirements are now forced to be more versatile. Packaging lines are required to handle several different SKU's, which involve short change over times to cater to the different volume orders from different customers. It is common to find single packaging lines catering up to 10 SKU's despite being the same product. The difference could come in the form of being able to handle different packaging material, colors, collations or sizes. When it comes to the "End of Line" of a packaging line, some of these differences transcend into forms of attractive packaging that stands out in the display shelves. Shelf ready packaging is a new trend that is developing across many markets, but many retailers also require bulk packaging, or to maximize products per shipper ratio.

To cater to such a big variety of demands, one can only expect more out of the new generation end of line machines. These EOL machines are now coming off age, especially in Asia. They are becoming more flexible to handle a large variety of products (in a tray or carton) with precision & finesse. They are getting more intelligent, give feedback to the user as well as the other machines in the whole of packaging line. This ensures that the packaging line as a whole works more efficiently. These machines are also becoming more space efficient to be accommodated in the smaller footprints.

First of the most widely used end of line packaging machine is the pick & place case packer. The pick & place case packers are either Mechanical or Robotic.

A mechanical case packer is typically used to pack rigid containers in a RSC case. The slow cycle time but high payload makes it particularly suitable to pack heavy containers at low speed or containers that can be easily accumulated on a conveyor (Rigid, stable bottles, jars, drums etc.)

1. Quick & tool free change over to ensure same machine can cater to multiple SKUs
2. Compact dimensions to occupy less floor space in the factory
3. Open design to ensure better accessibility, clean ability to ensure better maintenance
4. All the safety interlocks to ensure product & operator safety

A good Mechanical Case Packer works on a movement profile such as a Desmodromic Cam which ensures differential speeds & it gives better efficiency & smooth product handling. However, these case packers are usually dedicated for the beverage or bottle industry as it works on a simple fixed-pick up and fixed-deposit position.

A Robotic pick & place case packer is predominantly used for packing a product which can be stacked in multiple layers in a box. It can rotate 180° to ensure products like pouches which have tendency to sag at the end. Another product where a Robotic Case packer is used predominantly is Soaps.

Both the Mechanical & Robotic Case Packers should have a smart gripper assembly to ensure a quick & tool free change over. This is possible if the gripper assembly is changed head wise using quick release knobs. The gripper heads should have safety detectors to ensure the machine stops in case of a jam or product misalignment. This ensures lower accidents & in turn increases the machine up time.

Another type of widely used end of line machine is the Shrink wrapper. Shrink wrapping is an economic. They are predominantly used when the product is rigid, stable, not fragile or too heavy. Shrink wrapping is very commonly used in the beverage industry. Shrink wrapping can be done with printed films as well & this can make your product stand out on the shelf.

Shrink wrapping can be done in three configurations –

1. Shrink only – The products are collated & wrapped in a shrink film.
2. Shrink +pad -The product is collated placed on a pad & then shrink wrapped. It is usually done when the product is heavy.
3. Shrink + Tray – The products are collated on a tray blank; a tray is formed & it is then shrink wrapped. It is usually done when the products are heavy & unstable.

A shrink wrapping machine should be flexible to accommodate different SKUs with minimal adjustments & change over time. It should have capability to handle printed films. It should have a capacity of future upgrade to tray or pad unit; a machine with a modular structure can make this possible.

Continuous evolution through demand has made the end of line machines smarter. Expect more out of these machines!!!