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WEXXAR BEL

Latest Generation of High-Speed Case Formers: Faster with Less Operator Interaction

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Case forming systems play a critical role in the speed of throughput with end-of-line packaging processes. To achieve faster systems, operator interaction must be minimized. Supporting this is a new generation of high-speed case formers, such as the newly-released model DELTA 1 from Wexxar Bel, which not only delivers the highest throughput rate in the industry, but achieves this by streamlining automation to greatly reduce operator interaction.

Increased speed has become a huge driver in the packaging of consumer products. The traditional 24 products to a case has diversified to include 12 to a case, 6 to a case, 3 or 4 to a case, and even 2 in some cases. Retail store just-in-time orders, increased numbers of SKUs vying for shelf space, less inventory being carried in store backrooms, and online ordering have led to a diversity of smaller sized secondary packaging cases. This has resulted in the need for more frequent end-of-line changeovers to accommodate the variations in case sizes, with added downtime between runs to facilitate the changeovers. The result is reduced system speed and throughput on these packaging lines.

Most packaging systems are still feeding at a rate equal to when they were putting 24 items into a case. But now they are increasingly putting half, or less of that amount of product, in a case. As case counts decrease (products per case), the speed of case forming and packing needs to increase commensurately to maintain throughput counts and accommodate for added changeover time.

If end-of-line packaging wants to go faster, it needs to be able to feed the case forming and case packing machines with KDFs (Knocked Down Flats) not just more quickly, but with reduced operator interaction.

Minimizing operator hands-on activities is critically necessary to realizing heightened throughput rates and better ROI when handling diverse case sizes in case forming and case packing operations.

The initial steps of case loading for a case former are the most labor-intensive, requiring the highest amount of operator interaction in conventional systems. Therefore, this article will address case forming, with a focus on the initial loading of KDF cases.

Automated Case Forming

An increasingly frequent request from end-of-line packagers of consumer products is their need to eliminate operator interaction with their case forming systems. The more complex the interaction for the operator, the higher the chance of human error in the process.

The functions that an operator goes through to load a bundle of KDF cases in a traditional case erector come down to a series of seven manual steps:

1) Operator picks up the bundle
2) Operator lifts the bundle of cases to the load height of the magazine
3) Bundle is put upright in the magazine
4) Positioning arm that keeps the cases upright is turned off
5) Positioning arm is pulled back and pushed to the bundle of cases
6) Bundle of cases is moved forward
7) Pressure switch is turned back on so that it keeps the cases upright
8) Cases are padded down once they are in position

ABOUT SANDER SMITH

Sander Smith is the Product Manager of Wexxar Bel, a leader in case forming and sealing solutions. Sander has been in the packaging industry for 33 years and is well-versed in finding the right solutions for end-of-line processes. Sander's extensive knowledge in packaging machinery allows him to take Wexxar Bel machines to the next level through innovation and experience.

Wexxar Bel DELTA 1

Whatever makes it easier for the operator to start, run and stop a case forming machine, and not have to make adjustments, will increase uptime and throughput. Some of the latest designs of automated case formers have embraced this concept fully.

A good example is the DELTA 1 Fully Automated Case Former system recently released by Wexxar Bel. The company is a leading manufacturer of automated case erectors for consumer product packaging applications. Since it first started making case formers almost 50 years ago, this latest generation of machines is focused squarely on increasing speed by automating what previously required operator interaction.

A Closer Look at the Latest Evolution of Automated Case Formers

The DELTA 1 is a fully-automatic case erector with optional tape and/or hot-melt sealing, capable of throughput rates up to 35 cases per minute depending on the case size, quality and configuration. It operates considerably different from conventional case erectors.

Instead of seven manual KDF loading steps, these have been narrowed down to just two. This key feature is made possible by DELTA 1's Modular Expandable Magazine (MXM).

MODULAR EXPANDABLE MAGAZINE

The Modular Expandable Magazine includes a loading bay, a magazine section and an elevator section. The standard machine would have one module (load bay), but any number of additional modules can be integrated.

Each load bay can hold a stack of 75 cases, and is positioned at a low height of 16 inches for easy movement of the case flats onto the bay platform. The standard DELTA 1 machine has a capacity of 225 cases which can be loaded and readied for forming.

Adding one additional load bay would put 300 cases in the machine. At a rate of about 35 cases per minute, there is enough capacity to keep the machine running for approximately ten minutes. The machine will run all the way down to the last case in the magazine.

The DELTA 1 only requires 2 steps to load the magazine 1) the operator picks up the bundle 2) the operator lays the bundle onto the loading bay. This process has been optimized with the design of the DELTA 1, allowing case loading to be ergonomic by having the machine be forgiving to imperfect case loading.

One of the advantages of DELTA 1's MXM magazine is the ability to load while the machine is in operation. It requires a minimum amount of interaction between the operator and the system. All the operator has to do is to put the cases into the load zone, and press the load button. The operator is not lifting cases up and over into the machine, making it easy to load.

Patent pending MXM (Modular Expandable Magazine)

Loading bay can be extended with two or more MXM modules for increased loading capacity

There is no adjustment needed with the MXM. On conventional case erectors when a size change is made, an adjustment must also be made to the loading magazine. But that is not required on the DELTA 1.

PIN & DOME TECHNOLOGY

Another unique aspect of this case former is its Pin & Dome case opening technology.

This Pin & Dome system consists of two hardened steel pins which operate in conjunction with a raised steel dome. The case is thrust upward onto multiple Pin & Dome modules which permit the domes to guide the pins precisely into the flutes of the corrugated. The result of this is to clamp the outer skin of the case, giving unparalleled grip on the panels of the case.

The case is then securely held at the top, and forced open, as the major folding functions are performed. This provides a much more positive form of case opening compared to conventionally-used passive folding mechanisms like vacuum systems to open or manipulate the folding and forming of a case.

This process, supported by Dynamic Flap Folding, automatically folds the bottom flaps, providing consistently square cases, even for recycled or double-walled cases.

DELTA 1 PROCESS FLOW

The DELTA 1 process starts with KDF being mechanically top-picked to ensure case separation. Instead of separating cases by shearing a case off the top of the bungle, as would conventionally be done, this system grabs the KDF and brings it forward onto a gripper which holds the case in place until it is upright.

The case is then up-righted and is indexed to the side, ensuring each case is exactly justified for consistent case forming. The DELTA 1 is a side-justified machine, allowing for easy integration for subsequent labeling options.

The case is injected into the Pin & Dome jaw plate system which mechanically opens and controls the case and ensures case squaring. The major and minor flaps are mechanically folded, then the case is moved out of this position by a conveyor, while the jaw plate returns to begin forming the next case.

The movement of the conveyor grabbing the case, while the Pin & Dome jaw plates move to pick up the next case, represents a significant difference on this machine compared to conventional case erectors which are slower. This simultaneous combination of functions contributes to the high throughput speed of this machine.

The case is conveyed to the sealers, held in place and sealed at the bottom. Completed, the case is ejected from the case former.

Patented Pin & Dome Technology

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AUTO ADJUST CHANGEOVERS OPTIONS

With any manual changeovers, there is always the unpredictability in terms of time and repeatability of getting the case former to the same place every time.

Replacing traditional manual changeovers with positioning drive technology, the DELTA 1 offers the option of adding an Auto Adjust package, reducing the number of changeover points from 4 to 0. Automating changeover points allow for a quick and precise changeover for different case size runs.

Case size recipes can be saved in the HMI and easily retrieved and selected when the size change is desired. The operator picks a case from the menu, sending the machine into the Auto Adjust mode, and the machine will automatically make the adjustments necessary to run the next case. Auto-Adjust can perform the changeover in less than two minutes.

This capability significantly minimizes the chance of human error during a size change, minimizing downtime and troubleshooting.

Eliminate manual changeover with the Auto Adjust package

MINIMIZING OPERATOR INTERACTION

System speed with case formers has been limited by manual operator interaction for a considerable time. Technological developments, such as the Modular Expandable Magazines, Pin & Dome technology, and Auto Adjust Changeovers have opened the door to faster and more efficient case packers.

Even simple changes from manual to automation can have a profound effect on production and uptime in end-of-line packaging processes. For example, DELTA 1 provides an optional touchscreen HMI at the back of the case former that allows the operator to start, stop and run the machine from the loading platform as a central location. This seemingly small change, nevertheless, saves considerable time moving about the machine during the course of a shift.

It is smart-think changes like these, and many others that have catapulted this new generation of end-of-line packaging systems to the forefront, and continue to support the ever-changing needs of manufacturers, distributors and retailers in the consumer-goods marketplace.

Cases do not need to be perfectly stacked in the loading bay

Wexxar Bel is a leading manufacturer of high-performance case and tray formers, sealers and packers, including the IPAK tray former product line that features innovative designs to precisely create hundreds of tray styles. Wexxar Bel continuously pushes the boundaries of development with patented technologies like the Pin & Dome system to exceed the demands of shifting markets, relieving operational bottlenecks in secondary packaging. Wexxar Bel is a product brand of ProMach, a global leader in packaging line solutions. As part of the ProMach Robotics & End of Line business line, Wexxar Bel helps our packaging customers protect their reputation and grow the trust of their consumers. ProMach is performance, and the proof is in every package. Learn more about Wexxar Bel at www.Wexxar.com and more about ProMach at www.ProMachBuilt.com.

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