



How to Reduce Product Damage, Enhance Productivity and Increase Efficiencies



Paper Plate Manufacturing
Whitepaper

Introduction to Paper Plate Manufacturing

The U.S. paper plate industry is projected to increase over the next five years as consumer demand continues to rise despite coming under scrutiny by environmentalist groups. Although this category is expected to grow, the industry is experiencing increased import competition from emerging countries with less aggressive environmental regulations and technological advancements in the manufacturing process. These challenges are driving paper plate manufacturers to find new ways to reduce product damage, enhance productivity and increase efficiencies. Efficiencies that can help maximize the use of labor and resources.

One of the easiest and most effective ways to increase the efficiencies of the manufacturing process is through the use of automated manufacturing systems. These advancements can help dramatically increase productivity by automating the manufacturing process, either in part or in whole. There are four main areas of application where this automated technology can be adapted.

ACCUMULATION

One of the main areas where productivity can face challenges is during the accumulation process of manufacturing. Sometimes there is downtime in the manufacturing process, for example, leading to an accumulation of stacks that could become damaged during the waiting process. This is where low line pressure accumulation conveyors are especially useful, as the gentle movements of the plates helps ensure that stacks are not damaged at all, either on the sides or bottom of the plates. Automated mass accumulation technology, in other words, can help keep even an overflow of plates in order while maintaining stack integrity and increasing productivity. Plates are then single rowed back to the main truck to proceed on to packing, none the worse for wear. Additionally, automated processes can allow stacks from several presses to be sent to the main trunk, which speeds up the manufacturing process significantly.

DIVERTING

Sometimes there are different kinds of plates being manufactured and packed in a single plant. When this happens, it can be difficult to make sure that the right plates are sent to the right wrapper feed. This is where a vision divert device comes in particularly handy. This kind of device can determine what kind of plate it is looking at due to size or color, and divert it to the correct wrapper feed automatically. There is no need for manual organization or separation – this automatic process can keep everything organized and running smoothly.

REJECTING

Despite best efforts, sometimes paper plates are damaged in the manufacturing process. An automated rejecting process can help sort them out before being sent to be stacked and then packaged. This is



MULTI-LANE ACCUMULATION



REJECTING

done using a lift plate or pull nose assembly that is built directly into the conveyor surface. When combined with a vision reject device, deformed paper plates are easily detected and rejected without slowing down the rest of the manufacturing process. They can be rejected right from the conveyor belt and swept into bins below, offering easy clean up in addition to its convenient sorting ability.

STACKING

Stacking is a simple process when automated manufacturing is involved. A downstacker with a lift grid, for example, can help create the desired quantity for stacks and can be easily adjusted via HMI. Once the number is set, plates are automatically lowered until the correct stack is formed. These are then sent down the line towards packaging. Once the packaging process is completed, plates are then sent to an upstacker that helps prepare them for case packaging. The upstacker can create stacks that match the dimensions of packing cases to help facilitate easy packing and transport.

An automated manufacturing process can help to greatly reduce damage and waste in manufacturing. An automated process can also help increase productivity and efficiencies that help maximize labor and resources. In terms of cost effective manufacturing, it doesn't get much better than automated manufacturing.



SINGLE PLATE STACKING



PLATE BUNDLE STACKING

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