

Subject: Application Overview	Product: MP2600iec, SMC3010	Doc#: AO.MCD.05.021
Title: Random Rotary Placer		

Random Rotary Placer

Application Overview

Random rotary placers are used in a variety of applications ranging from placing labels on passing product, to dropping product into a case on passing conveyor. Random rotary placers can be used to solve both random in-feed and constant feed applications. This application controls the rotary axis of the placer to insure accurate placement as well as providing management of the placing mechanism.

Application Challenges

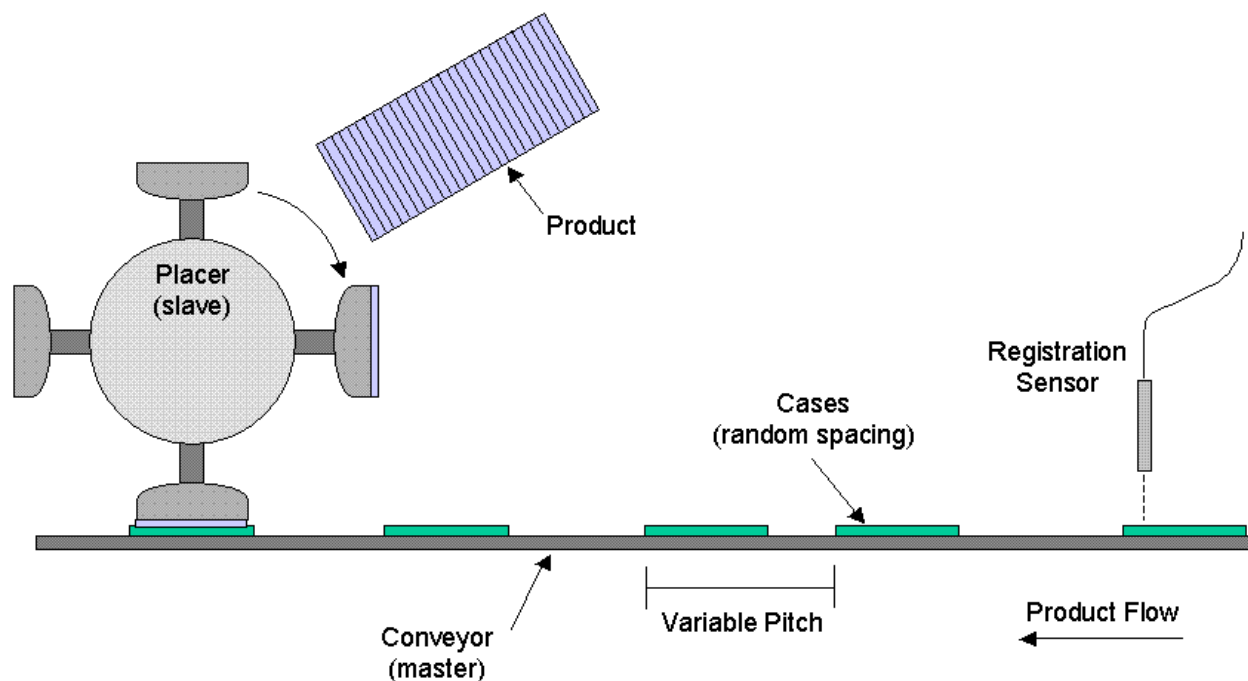
- Random Product In-feed – Controller must be able to account for product being fed at unpredictable intervals and realign to place product in the correct location.
- Increased throughput – Higher productivity should result from the addition of this motion control solution due to higher speeds and lower downtime
- Smooth Motion – The solution must yield smooth motion to reduce machine wear produced by jerky accelerations, resulting in increased machine life and lower maintenance (more uptime).
- Matching Conveyor Speed – As product is being placed, speed matching is critical to insure precise location for applications such as a label placer.
- Product Selection from Magazine – Controller must discern and anticipate when to pick a product from the magazine so that product is only grabbed if material is being fed down conveyor.

Yaskawa Products

Products	Product Features and Benefits
MP2600iec with Sigma-5	<ul style="list-style-type: none"> - Electronic camming with cam shifting for registration adjustment - Easy-to-use IEC61131-3 Based programming environment
Legend MC with the Legend Amplifier	<ul style="list-style-type: none"> - Electronic camming with over 256 defined cam points for highly accurate cam profiles - Text-based programming language with simple command language for instant operation

Application Solution and Benefits

Utilizing electronic camming coupled with precise cam profiles and on-the-fly cam shifting technology, Yaskawa motion controllers handle both random in-feed and constant pitch feed conveyors to place your product right on the mark. The Yaskawa solution utilizes profiled position based control rather than speed control in order to provide guaranteed accuracy even during fluctuating conveyor speed.



The figure above shows an example of a random rotary placer system. Cases are fed at random intervals on the conveyor and are located by a sensor to determine the interval of the cases. This variable pitch interval is used to determine the required correction distance as well as determining the proper machine cycle for picking and placing product. The difference between the machine cycle of the placer and this measured interval becomes the distance the placer must adjust in order to correctly align the placer to the next case. Cam adjustment occurs smoothly as the profile is shifted over an entire machine cycle to reduce mechanical wear by minimizing harsh accelerations. Reducing peak acceleration allows increased conveyor speed and thus increasing overall throughput.

Incorporating the Yaskawa line of Sigma-5 amplifiers and servomotors introduces the highest quality servo equipment in the industry to increase performance and reduce downtime. In addition, Yaskawa motion controllers can be integrated into larger control systems using Yaskawa machine controllers as well as a variety of communication capabilities, to provide ultimate connectivity and complete Yaskawa solutions.